Interrogating the Future:

Imagining War in an Age of Change, 1870-1914

David Bangert

This thesis is submitted in partial fulfilment of the requirements for the award of the degree of Doctor of Philosophy of the University of Portsmouth.

29 September 2020

Abstract

This thesis asks new questions of material dedicated to imagining the future of war, written between the Franco-German War of 1870 and the start of the First World War. It investigates what civilian and military writers meant by 'the future', and what methods they used to forecast the character and duration of a great war in Europe. With foundations in the rich historiography on the subject, the thesis has centred on a systematic evaluation of British periodicals in the period of interest, counterpointed by an assessment of key military journals, and literature identified as significant by previous historians.

The thesis has advanced the historiography by identifying the Russo-Turkish War (1877-78), and the Battle of Plevna in particular, as the starting point of a recognition that new weapons would revolutionise warfare, leading to a widespread apprehension over the consequences of a European war in the 1890s. It has also provided strong evidence to support the view that the British military understood the lessons of the South African War (1899-1902) and developed rational tactics to meet the challenge of more effective rifles. It has also determined that the cavalry, which faced the same challenge, sought excuses as to why their arm performed poorly in recent wars, rather than accepting its slide towards obsolescence on the battlefield.

Above all, however, the thesis has demonstrated the need to recognise the challenge commentators faced when they tried to forecast the future at a time of unprecedented technological change. Their means of predicting the future were immature, and the vast majority of civilian or military writers defined the future of war as something imminent; or focused on the effect of new weapons on the battlefield, rather than speculating on their strategic impact. The two main exceptions, Jean de Bloch and H. G. Wells, lie at the core of the thesis, because they are the exceptions which proves the rule. Their predictions were not necessarily altogether 'right', but they stand out as having developed new methods of interrogating the future. Military conservatism, however, including resistance to the adoption of scientific methods, prevented their approaches from gaining traction, leading to a widespread failure to foresee how the interaction of new technologies would lead to the deadlock of the First World War.

Contents

Abstract ii
Contents iii
Declaration iv
Acknowledgements v
Introduction 1
Chapter One Historiography 8
Chapter Two Facing Progress 52
Chapter Three The Dread of War 76
Chapter Four Sleepwalking to the Precipice 105
Chapter Five The Military Response 136
Chapter Six Stories of War 180
Chapter Seven The Wood and the Trees: Bloch and Wells 212
Conclusions 252
Appendix A Assessment of British Periodicals 258
Appendix B Research Ethics Review Checklist 267
Bibliography 269

Declaration

While registered as a candidate for the above degree, I have not been registered for any other research award. The results and conclusions embodied in this thesis are the work of the named candidate and have not been submitted for any other academic award.

Word count: 81,539

Acknowledgements

I would like to thank my supervisory team, Professor Brad Beaven, Dr Robert James and Dr Mike Esbester, for all their support and guidance in shaping this thesis and driving it towards completion. Their patience, advice and occasional dry humour proved invaluable in helping me to navigate the labyrinth, face the (literally) long, dark nights of research and eventually conclude my endeavours. I would also like to thank the wider History Department at the University for inspiring me to set out on this road during my Master's Degree, which preceded this research work.

I would also like to thank, and dedicate this work to, my wife Tracie, for all her support and encouragement in undertaking this research. It cannot have been easy, and I extend my apologies to my children for sometimes looking distracted by the events of more than a hundred years ago, during the time it has taken to bring this work to a conclusion.

Introduction

The causes of the First World War have intrigued historians for more than a century. It is hard not to see why, as Europe, at the apex of its global power and after nearly a hundred years of relative peace, plunged into a costly and destructive war. The extensive historiography on the causes of the war is testament to the rigour with which historians have dissected its origins. Margaret Macmillan, in her recent synthesis, *The War That Ended Peace*, assesses the causes suggested in the historiography, and concludes that one factor which contributed to the collapse of peace was a willingness, or even eagerness, to go to war.[1] There were countervailing arguments, but there was a widespread belief that war was a legitimate tool to further national self-interest, which went hand in hand with a conviction that a European War would be controllable, swift and decisive. It was not the case, either, that imagining war in the future – and specifically a great war in Europe – was neglected by contemporaries. Quite the opposite was true, and yet, to quote Clarke, "the great paradox running through the whole of [the] imaginary wars between 1871 and 1914 was the total failure of army and navy writers to guess what would happen when the major industrial nations decided to fight it out."[2] This failure extended to the output of most civilian writers as well, and this thesis has developed a new understanding of why there was a general failure to envisage, and still less predict, the character and duration of a great war in Europe.

This thesis has asked a new question of the sources: what did writers of the time mean by 'the future', and what methods did they use to forecast its character? This question is significant because this was the period of early 'scientific' – to use the contemporary term - scrutiny of the future. In the early twenty-first century, predictions of future technology and social trends are part of the intellectual furniture. Accurate or not, there is a deluge of material on the future, with an implicit recognition that it will be different

[1] Margaret Macmillan, *The War That Ended Peace: How Europe Abandoned Peace for the First World War* (London: Profile Books, 2014), 605. While Macmillan does not regard the War as inevitable, she contends that the likelihood of conflict increased with each of the international crises that affected Europe in the early twentieth century, leading to widespread complacency that the July crisis would successfully be managed in 1914.

[2] I.F. Clarke, *Voices Prophesying War 1763-3749 (*Oxford: Oxford University Press, 1992), 81.

to the present. Although change was already a fact of life by the mid-nineteenth century, the decades around the turn of the century saw the beginning of the discovery of the future, to borrow a phrase used by H. G. Wells in 1902, who explicitly called for a discipline to predict the future.[3] This illustrates the point that the methods of engaging the future were embryonic at the time, against a background of accelerating technological and social change. Philipp Blom entitled his study of the period 1900-14 as *The Vertigo Years*, emphasising the headlong change that contemporaries appreciated, wondered at, and feared.[4] The prediction of future war was therefore no longer just a case of political prophecy (such as which powers might be in conflict) but also technological forecasting (what weapons would be used in conflict, and with what effect).[5] Faced with the novelty of rapid change, the art of predicting the future had itself to be invented.

This thesis has therefore examined *what* futures were being discussed, and *how* they were being interrogated. Historical predictions of the future are often critiqued on what was 'right' and what was 'wrong', and while this is informative of the intellectual perspectives of the time (as well as being entertaining), it is important to understand that those engaged in looking at the future between 1870 and 1914 were pioneers in an age of unprecedented change, struggling towards a conception of what war would be like, without the benefit of either hindsight or recognised methods of forecasting the future. In fact, this thesis has demonstrated that specific aspects of future war were often examined with diligence and accuracy, but what was missing – with the exception of a few key works – was a synthesis of the parts into a whole. In short, the novelty of trying to peer into the future led most observers to focus on 'the trees' and not 'the wood'. Wells was one of the few who attempted to build a coherent picture of the future, including war, as did Jean de Bloch, whose compendious work *War of the Future in its*

[3] H.G. Wells, *The Discovery of the Future: a Discourse delivered at the Royal Institution* (New York: B.W. Huesch, 1913), accessed April 5, 2017, https://www.archive.org.

[4] Philipp Blom, *The Vertigo Years* (Philadelphia: Basic Books, 2008).

[5] Clarke, "Voices Prophesying," dedicates three chapters to the period 1870 to 1914. The first focuses on *The Battle of Dorking*, which is widely credited with starting the genre of 'invasion literature', which saw numerous writers imagining invasions of Britain by France, Germany, Russia and others over the decades to come (including Wells' Martians in *The War of the Worlds*). The second and third cover the years from 1880 to 1914 in parallel, split into 'science and wars-to-come' and 'politics and the pattern of the next great war'.

Technical, Economic and Political Relations, published in 1898, adopted an unprecedented – as well as remarkably prophetic - approach to predicting what would happen in a future Great War in Europe.

This is not to say that change was understood or embraced by all. The European military establishments of the decades before 1914 tended to the conservative, as witnessed by their hostility to Bloch's work, which was seen as an attack by an amateur on their professional integrity. Their failure to grasp the magnitude of the change in warfare brought about by new weapons, became evident during the First World War. In fact, their perceived inability to overcome the challenge of trench warfare has become the 'Blackadder myth', applied particularly harshly to British Generals.[6] As with all myths, there is truth underlying this assertion, but the British military establishment was not alone in failing to adapt to the unprecedented change in military affairs in the decades before 1914. War had been transformed by new weapons in less than two generations, and this thesis demonstrates that while their failure was exacerbated by conservatism, those civilians who imagined new weapons also tended to present grossly simplified visions of their likely impact on war. As noted above, this thesis has identified Bloch and H. G. Wells as striking examples of writers who attempted a more mature synthesise of the future. Although their predictions were not entirely accurate, what differentiated them were their methods, which were so precocious that it would take two world wars to establish them as widely accepted approaches to interrogating the future.

This thesis has built on the extensive body of previous historical analysis, but adopted the novel approach of conducting a systematic survey of British periodicals from the Franco-German War to the outbreak of the First World War. This has been essential to understanding how the debate on the future of war evolved over the period, as well as how commentators reacted to contemporary conflicts. The research has shown that there is no shortage of relevant material, demonstrating intense interest in the subject of

[6] Gary Sheffield and Dan Todman have used the term as a reference to the TV comedy series *Blackadder Goes Forth*, released in the 1980s, which uses the stereotypes of trench warfare to comic effect, and particularly the myth that British Generals were universally incompetent, callous and remote from the fighting.

future war. To provide context to this assessment, the same periodicals have also been examined for material on forecasts of the future in general, as have relevant military writings in both journal and book form, and fiction focused on future war. The research has been deliberately concentrated on warfare on land, as this is most relevant to a great war in Europe. This thesis does, however, touch on war at sea within the context of strategy - such as the impact of commerce raiding on the supply of food to Britain.

The periodicals are significant as they were being published during a period when literacy rose dramatically, illustrated by newspaper readership doubling between 1896 and 1906; and then again to 1914.[7] This was the culmination of a trend identified by the *Routledge Handbook of Nineteenth Century British Periodicals and Newspapers,* such that, "over the course of the nineteenth century, periodicals and newspapers became a ubiquitous feature of daily life."[8] It also highlights the fact that periodicals defined themselves against newspapers in terms of being 'class' or 'specialist' publications, rather than those which centred on news, or were miscellanies.[9] It is these periodicals, with their more ruminative and discursive articles on contemporary issues, that have delivered the majority of primary sources in this study. They provide insight into the intellectual currents and concerns in Britain between 1870 and 1914, aimed squarely at an upper-class and middle-class readership which was assumed to have a knowledge of the Empire, war and European politics. The British periodicals - and the military journals - also show a keen interest in writing on future war from other countries, and above all Germany, which was increasingly seen as a future adversary in the years before 1914, providing insights into contemporary European thinking on war.

[7] Simon Heffer, *The Age of Decadence: Britain 1880 to 1914* (London: Random House, 2017), 541.

[8] Andrew King, Alexis Easley and John Morton, eds., *Routledge Handbook to Nineteenth Century British Periodicals and Newspapers* (Abingdon: Routledge, 2016), 1, estimates that 125,000 titles were published in England alone between 1800 and 1900, including local and national publications. Alvin Sullivan, *British Literary Magazines: The Victorian and Edwardian Age*, 1837-1913 (London: Greenwood Press, 1984), xiii, gives a figure of 50,000 titles, less than that given in the later source, but still considerable.

[9] Laurel Bale, "Markets, Genres, Iterations," in *The Routledge Handbook to Nineteenth Century British Periodicals and Newspapers*, ed. Andrew King, Alexis Easley and John Morton, 237-248 (Abingdon: Routledge, 2016), 237.

Alvin Sullivan's three volume study of British 'literary' periodicals contains an exhaustive assessment of contemporary sources.[10] Of the twenty periodicals cited more than once in this thesis (excluding those from military journals, or from professional, religious or non-British sources), sixteen are described in Sullivan's work, which is significant for two reasons. Firstly, the vast majority of articles interested in the future – and that of war – sit within what can be considered 'literary' periodicals, many of which are considered by Sullivan to be 'quality' publications with significant social and intellectual impact, showing how the future was a topic of considerable interest to the elites at the time (Appendix A contains a more detailed assessment of the periodicals most cited in this thesis). Secondly, as this study has relied heavily on searching through digitised collections, the correlation with the titles in Sullivan's work shows that they are not a narrow collection but representative of many of the most significant periodicals of the time. This answers the challenge posed by the *Routledge Handbook*, that "although only a small fraction of the estimated total of 50,000 periodicals and newspapers has been digitised readers usually focus disproportionally on titles available due to ease of access."[11] The methodology section at the end of Chapter One describes the approach to the research which has been undertaken, primarily through interrogation of the digitised *ProQuest Periodicals Archive Online* (including what was formerly *British Periodicals Online*).

One barrier to understanding the period is that many of the writers of the articles in the periodicals are anonymous, or represented by non-de-plumes such as 'Eques', 'Cavalry' or 'Nauticus'. This 'veil of anonymity', as Mann calls it, becomes less of an issue as the period advances, although shorter pieces, such as those in *The Review of Reviews* (the periodical most cited in this thesis) are never ascribed authors.[12] This can be frustrating, given that many of the writers were significant figures of the period, such as

[10] Sullivan, "Victorian and Edwardian," xiii. In terms of definition, he concludes that "the greater proportion of [periodicals] would not be judged literary by most definitions, but one is still left with an astonishing number that carried at least some reviews, reflective prose, poetry or fiction." Put another way, the literary periodicals also contain many articles on other subjects, such as the future of war.

[11] Bale, "Markets, Genres, Iterations," 237.

[12] Fiona Mann, "Lifting the 'universal veil' of Anonymity: Writers on Art in the Periodical Press 1850-1880," *The British Art Journal*, Vol XV No.2: 33. Although Mann's article is specifically focused on art, many of the periodicals she mentions are sources in this thesis, such as *The Spectator*, *The Athenaeum* and *Blackwood's*.

Arthur Conan Doyle or Field Marshal Frederick Roberts, and anonymity hides identities. Having said this, many prominent writers do identify themselves, and no less than sixteen authors appear in the *Oxford National Dictionary of Biography*, emphasising the prominence of writers on the future of war.[13] As Macmillan says, the decision to go to war in 1914 was made by a surprisingly small number of men from the upper classes, whether they be from the landed aristocracy or the urban plutocracy, and a number from that elite were writing on the subject of war in the future.[14]

The thesis is structured into seven chapters, followed by conclusions. The first chapter is a review of the extensive historiography on the future of war, and forecasting the future, relevant to the period between 1870 and 1914. The second examines the attention paid by the British periodicals in the future in general over the period of interest, illustrating their growing interest in what new technology would offer, and potential effects on society, as well as the beginning of an interest in 'scientific' forecasting. The third and fourth are, respectively, focused on the way the British periodicals examined the future of war between 1870 to 1899 (marking the beginning of the South African War); and from 1899 to 1914.[15] The third chapter identifies the way in which the Russo-Turkish War, and particularly the Battle of Plevna in 1877, revealed the power of new weapons to change war, with the consequent emergence of widespread dread about the prospect of a future European War. The fourth chapter centres on how the debate on war changed with the South African War, becoming more parochial – given Britain's involvement – with an attendant loss of focus on what a general European war might bring. Taken together, they demonstrate the great interest in future war in the periodicals, but also show how their focus was usually on very particular aspects, or in contrast somewhat diffuse, reflecting a general fear of what a Great War would be like.

---

[13] *Oxford Dictionary of National Biography*, www.oxfordnb.com.

[14] Macmillan, "War That Ended Peace," 230.

[15] The contemporary periodicals referred to the war as the South African War, the Transvaal War, the Boer War or simply 'the war in South Africa'. As probably the most common identifier, the conflict is referred to as 'the South African War' throughout this thesis, except where a different name is used in a contemporary reference.

The fifth chapter focuses on the military journals of the period, which have been specifically assessed in terms of what questions they asked of the future. Once more, the wealth of material on the future of war has been clearly identified, as is the way the military tended to be conservative in its analyses, seeing new technologies as augmenting military practice, rather than revolutionising its conduct. The sixth chapter turns to fiction, including both short stories and novels, and shows how authors reflected the concerns and interests of writers in the civilian periodicals and military journals. Like these, they tended to either offer a conservative view of future war, or alternatively a view that new technologies would change war, albeit in very specific and dramatic ways. The seventh and final chapter is centred on the work of the two writers who, more than any others, applied new different methods to the treatment of the future: Bloch and Wells. It shows that their approaches aimed to develop syntheses of technological, social and military change, while most writers struggled even to conceive of the way in which change would transform warfare. As outliers for the majority of those writing on the subject, they highlight the general failure of commentators to forecast the First World War.

The conclusion of this thesis has been driven, throughout, by asking the central question of what the writers of the time meant when they discussed the future of war, and how they attempted to tackle its prediction. They lived in a new world of accelerating technological and societal change, which meant the future would be shaped by technology in a way to render it different to the present. Although this had been the case earlier in the nineteenth century, it was the decades under scrutiny which recognised its profoundly dislocating potential. Some, especially in the military, attempted to resist the inevitable conclusions of change, but all struggled to build a picture of future war through the sheer intractability of predicting things to come in an age of furious change. As Tom Smallways, the father of the protagonist, Bert Smallways, puts it in Wells' *The War in the Air*, when facing the dizzying change he had seen in his life: "This here Progress, it keeps on. You'd hardly think it *could* keep on".[16]

[16] H.G. Wells, *The War in the Air* (London: Penguin Classics, 1946 [First Published 1908]), 5.

Chapter One Historiography

It is easy to find photographs of the various European armies in 1914 which seem to belong to a distant, antediluvian age. Generals with ornate uniforms, cavalry armed with lances, tethered airships, and an overwhelming impression of stiff formality all signify remoteness to a contemporary observer. In contrast, images of the military taken only thirty years later, near the end of the Second World War, do not look too dissimilar to their contemporary equivalents. Pictures can, of course, be deliberately selected to convey a particular tone and those of 1914 can be used to reinforce a perception that as that year of crisis unfolded, "the protagonists were people from another, vanished world".[1] Indeed, part of the historiographical fascination for the origins of the First World War is a sense that the Europe in 1914 was a lost world on the brink of catastrophe.[2] In contrast, writers such as Philipp Blom have emphasised the disconcerting and exhilarating nature of social and technological change in the decades before the First World War.[3] Indeed, the cover of the paperback version of his *The Vertigo Age* contains a picture of a racing car speeding past spectators, emphasising modernity and dislocation, in riposte to the idea of a distant *belle epoque*. These different perspectives illustrate the debate at the heart of much of the historiography about what happened when the armies of the Great Powers went to war in 1914. One perspective, as put by Stephen Van Evera, is to suggest that "the gulf between myth and the realities of warfare has never been greater than in the years before World War I"?[4] Other historians, however, believe that the military establishments of the time were attempting, albeit with decidedly mixed results, to find rational solutions to the

[1] Christopher Clarke, *The Sleepwalkers: How Europe Went to War in 1914* (London: Penguin Books, 2013), xxv.

[2] Charles Emmerson, *1913: The World Before the Great War* (London: Vintage, 2013), 456.

[3] Philipp Blom, *The Vertigo Years* (Philadelphia: Basic Books, 2008), 2.

[4] Stephen Van Evera, "The Cult of the Offensive and the Origins of the First World War," *International Security* 9 (1984): 58.

challenges of half a century of technological and economic change which had completely altered the character of conflict.[5]

Expressing the historiographical debate as a dichotomy is a simplification, of course, but this thesis has added weight to the view that contemporary military theorists, in Britain and elsewhere, were aware of the changes brought about by increased firepower on the battlefield, and sought ways to factor it into the successful execution of war. It will also demonstrate, however, that the intellectual framework did not exist to fully understand the impact of new weapons and technologies on warfare. Military theorists sought answers within the traditional structure of warfare, with new technologies seen as augmenting, but not revolutionising, military practice. They focused on tactical battlefield solutions, but almost entirely failed to understand how increased defensible firepower would affect strategy. What further restricted their comprehension was that strategy was seen as having eternal fixed rules, with only tactics requiring adaptation in the face of new weapons.[6] This division contributed to a failure to understand what would happen when a European war between coalitions of great powers unfolded, leading as it did to the trench deadlock of the First World War.

Civilian commentators did see technology as making war more uncontrollable and revolutionary, with writers responding emotionally to the power of new weapons, particularly as a consequence of the Battle of Plevna in 1877, which demonstrated the destructive power of breech loading rifles and led to an outpouring of fear as to what a future European War might be like, which was as acutely felt as it was vague in detail. Such dread reflected contemporary intellectual pessimism, at a time when the future

[5] John Terraine, *White Heat: the New Warfare 1914-18* (London: Sidgwick & Jackson, 1982): 328 and Andrew Liaropoulus, "Revolutions in Warfare: Theoretical Paradigms and Historical Evidence: The Napoleonic and First World War Revolutions in Military Affairs," *Journal of Military History* 70 (2006): 377.

[6] The modern definition of tactics is "the art or science of deploying military or naval forces in order of battle, and of performing warlike evolutions and manoeuvres," *Oxford English Dictionary*, definition of 'tactics' (noun), accessed 25 May 2020, www.oed.com. In contrast, that of strategy is "the art or practice of planning or directing the larger movements or long-term objectives of a battle, military campaign, etc," *Oxford English Dictionary*, definition of 'strategy' (noun), accessed 25 May 2020, www.oed.com. In essence, tactics might be seen as what happens on a battlefield, while strategy is concerned with bringing those forces to the battlefield. The same distinction was used in the late nineteenth and early twentieth centuries, along with debate as to where or when the two overlapped.

was increasingly seen to belong to science. The emphasis of military theorists on battlefield tactics, and the unease felt by civilian commentators, however, actually reflect different aspects of the same problem. Social and technological change was accelerating in the last decades of the nineteenth century, and the weapons available to the armies and navies of the time was transformed between the 1850s and the 1890s. It is too easy to forget how unprecedented this change was, and while the turn of the century saw the first pioneers begin to develop new ways of interrogating the future, the climate did not exist to establish an intellectual framework to forecast the future. In short, prophecy was not easy, and the historiography can be too critical of how contemporaries reacted to changing military technology, by failing to see the scale of the challenge which they faced.

To support this argument, which lies at the heart of this thesis, five strands of historical discourse have been explored. Three of these relate directly to different aspects of military thinking, the first being an examination of the historiography on military attitudes to war in the decades before the War. This explores the way in which European military establishments responded to the reality of increased firepower on the battlefield, with historians divided as to how they sought to overcome the challenge of new technologies. On the one hand there are those like Van Evera, who believe that they sought moral solutions to overcome increased firepower on the battlefield, sometimes to the extent of developing irrational answers based on national fervour or strength of will. On the other are those who see them as developing new tactics and approaches, such as inculcating greater initiative into troops, based on battlefield experience. The second strand of debate is about the British Army and its place in society; with the historiography asking to what degree social attitudes contributed to a failure to prepare for the War. This is particularly relevant to the attitudes shown in the periodicals and military journals, which were often the subject of debate between conservatives and reformers regarding the need to change military practice.

The third strand of debate cuts across both of the above and highlights the wider historiographical discussion of 'rational' or 'irrational' responses to change in warfare through debate on the armament and role of the British cavalry in the years before

1914. Cavalry, British or otherwise, proved to have limited utility in the War itself, but were the subject of intense debate from the 1870s to the 1910s, acting as a 'lightning rod' for contemporary debate and subsequent historiographical assessment. Much criticised in twentieth century historiography for being hopelessly conservative, revisionist historians have sought to rehabilitate the cavalry and demonstrate that they too responded intelligently to the changing circumstances of war. The fourth strand discusses the historiography on the fiction of the period dedicated to wars of the future, written by both military and civil writers. This is, once more, entwined with the three themes discussed above, as writers such as Arthur Conan Doyle wrote on military affairs in the periodicals, and military writers were sometimes authors of the 'invasion literature' of the time.

The fifth and final strand is the historiography around the increasing importance of science and quantification at the time, including the development of methods for predicting the future. This historiography is significant as contemporary debate recognised that science was becoming more important in civilian and military life, and there were often calls for its methods to be applied more vigorously to professional life. In practice the appeals for its use outweighed its application, but – as emphasised above - the failure to predict the character of the War cannot be understood without recognising the challenge of rapid change in military technology. Although somewhat separate to the other four intersecting historiographies, it sites discussion of the future and the role of science in the wider intellectual climate of the time, which increasingly leaned to the pessimistic as the decades advanced. This chapter concludes with a description of the methodology used for the research which underpins this thesis.

Before going on to investigate the historiography in detail, it is necessary to clarify the use of the term 'moral' – and 'morale' in writing of the period. In modern usage 'moral' means "Of or relating to human character or behaviour considered as good or bad; of or relating to the distinction between right and wrong, or good and evil, in relation to the

actions, desires, or character of responsible human beings; ethical."[7] In contrast 'morale' means "The mental or emotional state (with regard to confidence, hope, enthusiasm, etc.) of a person or group engaged in some activity; degree of contentment with one's lot or situation."[8] In the late nineteenth and early twentieth centuries, however, 'moral' was sometimes used as a synonym or replacement for 'morale', in a way the Oxford English Dictionary now considers to be obsolete or rare.[9] Throughout this thesis, quotations from primary sources use the contemporaneous spellings and meanings, while the remainder of the text uses the modern meanings of morale and moral, except where an anachronistic usage is signalled thus: 'moral'.

The Cult of the Offensive

In 1984 the political scientist Van Evera used the term 'the cult of the offensive' to explain the behaviour of European armies at the outbreak of war.[10] His thesis was that the militaries of the time responded to the increasing power of the defensive in warfare, evident in both the South African and Russo-Japanese Wars, by developing an irrational belief in the ability of aggressive action to overcome technological barriers. Military establishments in Europe developed offensive doctrines which, in some quarters, verged on the mystical, permeating both tactical and strategic thinking, leading Van Evera to conclude that "the cult of the offensive was a principal cause of the First World War."[11] He related the emphasis on achieving success through greater morale and nationalist fervour to the prevailing contemporary formulation of Social Darwinism, in that nations must compete violently to avoid eclipse by their more dynamic neighbours. The drive

[7] *Oxford English Dictionary* entry for 'Moral', accessed 25 May 2020, www.oed.com. There are several further definitions of the adjective, but the quote in the main body captures the essence of the definitions.

[8] *Oxford English Dictionary* entry for 'Morale', accessed 25 May 2020, www.oed.com.

[9] Oxford English Dictionary, entry for 'moral' (noun and adjective), accessed 25 May 2020, www.oed.com. The entry for the noun explicitly uses a quotation from the *Westminster Gazette* in 1900 to illustrate this anachronistic use, "the force investing Mafeking is daily being shaken in moral."

[10] Van Evera, "Cult of the Offensive," 58. John Shy, "The Cultural Approach to the History of War," *Journal of Military History* 57 (1993): 20, identifies Van Evera as having recently coined the phrase 'the cult of the offensive', although it originated with Marshal Joseph Joffre in *Memoires du Maréchal Joffre* (Paris: Librarie Plon, 1932): p. 33. Joffre speaks of "le culte de l'offensive" and "d'une mystique de l'offensive".

[11] Van Evera, "Cult of the Offensive," 58-59.

for offensive action then reinforced the need for rapid mobilisation and pre-emptive action to win wars, leading to disaster in 1914.[12]

Jack Snyder, writing in the same edition of *International Relations* as Van Evera, presented a parallel argument that the doctrines behind 'the cult of the offensive' were a significant cause of the war.[13] His specific thesis was that a pathological pattern of civil-military relations underpinned its development, culminating in war in 1914.[14] In France, for example, he considered that the officer corps developed the doctrine of 'offensive á outrance' (offense to excess) to support the maintenance of a professional army, in opposition to the use of short-term service soldiers and reservists favoured by the government.[15] This distrust was rooted in the specific toxic atmosphere of military and civil relations following the Dreyfus affair, but other European armies suffered from similar dislocations. Synder concluded that, for a range of individual reasons, the armies of the time sought decisive results through offensive action, to justify their own existences and to deliver imagined economic benefits to their nations.[16] Synder did not blame the military establishments for the war, but suggested that their institutional interests 'unhinged' doctrine from military reality, with disastrous consequences in the War.

The ideas of Van Evera and Snyder may be contrasted with those historians who have sought a more nuanced view of military thinking before the First World War. Tim Travers, for example, extensively researched the attitudes of the British Army to war between the South African War and the First World War, during the 1970s and 1980s, and concluded that the emphasis on offensive action was rooted in an understanding of

[12] Van Evera, "Cult of the Offensive," 72-76.

[13] Jack Snyder, "Civil-Military Relations and the Cult of the Offensive," *International Security* 9 (1984): 108-146. Synder is another political scientist – at the time he was an Assistant Professor in the Political Sciences Department of Columbia University – and he cited Van Evera as one of the commentators on his paper. Snyder and Van Evera had collaborated before the publication of their 1984 articles and were to do so again, later in their careers.

[14] Snyder, "Civil-Military Relations," 109.

[15] Synder, "Civil-Military Relations," 110.

[16] Synder, "Civil-Military Relations," 119.

the way new weapons were changing warfare.[17] Travers' forensic examination of British Army papers of the time highlighted the way in which the shock of the South African War drove home lessons about the realities of contemporary warfare to an institution more used to fighting poorly armed and organised 'native' armies. Tactics continued to evolve after the Russo-Japanese War had demonstrated the ability of a well-motivated attacker (the Japanese) to cross the fire zone and achieve decisive success on the battlefield, albeit with high casualties. His thesis was that the Army *knew* how costly and difficult offensive actions would be, and so sought to drive their troops on to success by emphasising the importance of morale.[18] Travers, while presenting the Army's response as rooted in a rational reading of battlefield tactics, related this to a contemporary Edwardian reaction against scientific rationalism, and concerns over a 'degenerate' nation which had been highlighted by the poor quality of recruits to the colours in the Boer War. He noted, for example, commentators such as Lieutenant-Colonel Ian Hamilton, who preached in terms of victory going to the nation with the stronger will.[19] For all its attempt to develop tactics fit for the new weapons available to the armies of the time, he nonetheless concluded firmly that social and cultural factors prevented the British Army from achieving a full understanding, while observing that similar institutional problems affected the French and German armies during the first few years of the War.

Michael Howard, writing at the same time as Van Evera, put forward a similar interpretation to Travers, concluding that the conflict which most affected military practice in the First World War was the Russo-Japanese War, with the South African War seen as an aberration due to its colonial nature and the small size of the British Army.

---

[17] T. H. E. Travers, *The Killing Ground: The British Army, the Western Front & the Emergence of Modern War 1900-1918* (Barnsley: Pen & Sword, 2009 [first edition 1987]); T. H. E. Travers, "Technology, Tactics, and Morale: Jean de Bloch, the Boer War, and British Military Theory," *Journal of Modern History* 51 (1971): 264-286 and T. H. E. Travers, "The Offensive and the Problem of Innovation in British Military Thought 1870-1915," *Journal of Contemporary History* 13 (1978): 531-553. Van Evera, "Cult of the Offensive", p.59 explicitly acknowledges Travers work. Travers used the phrase 'a cult of initiative and dash' in 1979, but when he published *The Killing Ground* in 1987 he explicitly used the term 'Cult of the Offensive' for the title of one of his chapters.

[18] Travers, "The Offensive," 546.

[19] Travers, "Technology, Tactics and Morale," 281. As Travers' drily observes, Hamilton was to realise for himself the power of defensive entrenchment when he commanded the British forces at Gallipoli in 1915.

European Armies adopted the *idea* of offensive action while ignoring the careful tactics used by the Japanese to achieve success against Russian trenches.[20] Howard also stressed that contemporary observers recognised the contribution of Japanese morale and discipline in achieving victory, and that while this could be translated – by observers such as Hamilton – into irrational calls for national regeneration, it was rooted in military reality. Howard nonetheless remained convinced of the important role that political and social factors had in the military culture of the time. For example, French soldiers went to war in 1914 in blue tunics and red trousers because political conservatism delayed the adoption of camouflage, which had been used by the British Army in the 1880s.[21] Even more damagingly, a corrosive political culture of national chauvinism led to the French emphasis on the 'offence á outrance', resulting in very French heavy casualties in Alsace-Lorraine in August-September 1914.[22]

Douglas Porch, who has written extensively on the French Army between the Franco-German War and the First World War, has been critical of Snyder's view of the French Army as a bureaucracy choosing offensive action to justify its existence.[23] Like Howard, he recognised that a discussion of morale in warfare is not irrational, and concluded that the French Army lacked the tactical ability to achieve its aims.[24] Specifically, Porch identified 'institutionalised anarchy' within the French Army as leading to a lack of any doctrine other than the generalised development of the offensive at all cost.[25] Partly, this arose from looking back to the Napoleonic period and citing revolutionary fervour as a way of defeating a more populous and industrialised Germany.[26] In addition, the Republican Government did not trust the high command and feared strong Army leadership, foisting upon it a programme of education aimed more at social change than

[20] Michael Howard, "Men Against Fire: Expectation of War in 1914," *International Security* 9 (1984): 56.

[21] Howard, "Men Against Fire," 53.

[22] Howard, "Men Against Fire," 57.

[23] Douglas Porch, "The Marne and After: A Reappraisal of French Strategy in the First World War," *The Journal of Military History* 53(4) (1989): 376. Synder references Porch in his work on 'the cult of the offensive'.

[24] Porch, "Marne and After," 368.

[25] Douglas Porch, "The French Army and the Spirit of the Offensive," in *War and Society: A Yearbook of Military History*, eds. Brian Bond and Ian Roy (London: Croom Helm, 1975), 118.

[26] Porch, "French Army," 120.

military effectiveness.[27] This climate led to a detachment from military reality, with British observers a few years before the War observing – from the perspective of fighting in the South African War – that French infantry and cavalry did not seem to know how effective modern rifle fire was in the field.[28]

A. J. Echevarria, writing in 2010, considered that the 'cult of the offensive' had become conventional wisdom, which is perhaps going too far, given the work of Howard, Travers and others. Notwithstanding this, he modified the position of van Evera and Synder by considering that the discussion of morale and psychological factors in warfare was *not* ridiculous in itself, but that it could be misused or oversimplified, identifying the danger of allowing the language used by contemporary writers – terms such as 'will to conquer' – to obscure the subtleties of their arguments, in a literary equivalent of the distancing effect of images of the military in 1914.[29] Echevarria did not downplay the significance of cultural influences but identified their place alongside reasoned, if erroneous, military debate based on the Russo-Japanese War, closing the historiographical gap, as it were, with Howard, Travers and Porch.

Lauren Wilcox – writing at around the time Echevarria published his reassessment – examined the 'cult of the offensive' from a feminist perspective. She argued that a focus on masculine values in warfare led to an "over-estimate of the importance of the spirit and honour in offensive warfighting".[30] She concluded that gender, as well as class and racial ideologies, led to an emphasis of chivalric values and heroic combat, against the backdrop of a crisis of masculinity in Edwardian Britain.[31] These attitudes led to the portrayal of offensive action as being masculine, and therefore positive, leading to disastrous consequences in 1914. Wilcox is not alone in seeing a dangerous undercurrent in the heroic depictions of war which affected Europe before the War, as

[27] Porch, "French Army," 118.

[28] Porch, "French Army," 134.

[29] A. J. Echevarria, "The Cult of the Offensive' Revisited; Confronting Technological Change Before the Great War," *Journal of Strategic Studies* 25 (2002): 201.

[30] Lauren Wilcox, "Gendering the Cult of the Offensive," *Security Studies* 18 (2009): 222.

[31] Wilcox, "Gendering," 227.

seen below in the section on contemporary attitudes to the British Army.[32] Certainly, the spirit of 'heroism' was evident in contemporary artillery tactics, which emphasised a need to close with the enemy and conduct direct fire attacks, and the reluctance to abandon cavalry shock action on the battlefield.

More recently, Bowman and Connelly's extensive analysis of the Edwardian army explicitly set its goal as "determining just how far the British Army managed to digest the lessons of the South African and the Russo-Japanese Wars and integrate modern firepower into its understanding of battle."[33] Their conclusion was that the period, through a desire to understand the experience of those wars, saw the publication of a significant volume of well-informed debate on infantry firepower and the use of artillery.[34] Specifically, they highlight the fact that the need for offensive action was not irrational, but founded on a recognition that troops going to ground under fire in the South African War had suffered high casualties; so maintaining the attack was tactically sensible.[35] Their assessment, while recognising limitations in the British Army, such as its failure to develop an adequate General Staff, was emphatic, such that "no one can accuse the British Army of failing to address the problems caused by modern firepower….obvious in the impressive list of reports, articles, lectures and discussions produced across the period."[36]

The discourse between these historians goes to the root of military culture in 1914, which is to understand the extent to which the armies of the time were responding rationally to the changed conditions of warfare. Howard, for example, provides examples of reasoned, if sometimes incorrect, assertions over tactics, and Porch notes that while the French insistence on advancing in close order was to have suicidal effects,

[32] See, for example, Glenn Wilkinson, "The Blessings of War: the Depiction of Military Force in Edwardian Newspapers." *Journal of Contemporary History* 33 (1989): 97-115; and John Tosh, "Masculinities in an Industrialising Society: Britain, 1800-1914," *Journal of British Studies* 44 (2005): 330-342.

[33] Timothy Bowman and Mark Connelly, *The Edwardian Army: Recruiting, Training and Deploying the British Army, 1902-1914* (Oxford: Oxford University Press, 2012), 5.

[34] On infantry fire, see Bowman and Connelly, "Edwardian Army," 66; on the debate about direct and indirect artillery fire, Bowman and Connelly, "Edwardian Army," 83.

[35] Bowman and Connelly, "Edwardian Army," 86.

[36] Bowman and Connelly, "Edwardian Army," 104.

it was partly driven by a reasonable fear of dispersion on the battlefield making command impossible.[37] Bowman and Connelly demonstrate the efforts to which the British Army went to dissect the lessons of the South African and Russo-Japanese Wars. All of the theorists were, in reality, battling with the fact that offensive action was becoming more difficult because of the power of defensive fire. This view has been developed by historians since the 1960s, of which John Terraine was one for the first, leading to a widespread conclusion that it was the state of contemporary military technology which led inevitably to the dominance of the defensive in the First World War, manifested in trench deadlock.[38] The effect of increased firepower was recognised by contemporaries, at least at the tactical level, but a period of relatively long peace, coupled with prevailing ideas of masculinity and heroism, sometimes led to attitudes being expressed which verged on the irrational.

There is also a need to more clearly separate tactical and strategic thinking. The 'cult of the offensive' has been applied to both, but given the weight of evidence, it is hard not to disagree with Dan Todman and his conclusion that the British Army was tactically "mistaken, but trying to deduce solutions from the evidence available to them."[39] Far less thought was given to strategy, and specifically what might happen during a general coalition war. Although the British Army planned intervention on the Continent, David Morgan-Owen, in his study on pre-War planning, concludes that "Britain's political leadership did not articulate a coherent vision for how it envisaged bringing a future Great Power conflict to a conclusion before the outbreak of the First World War."[40] The same was true of Germany, reflecting the fact that few contemporaries were thinking in terms of anything but a short war. Echevarria notes how military theorists, such as the German Colmar von der Goltz, recognised how technology had changed warfare and

[37] Porch, "French Army," 135.

[38] John Terraine, *The Smoke and the Fire: Myths and Anti-myths of War 1861-1945* (London: Sidgwick & Jackson, 1980). For examples of later writing on the subject, see Dan Todman, *The Great War: Myth and Memory* (London: Continuum International, 2007) and Niall Barr, "Command in the Transition from Mobile to Static Warfare, August 1914 to March 1915," in *Command and Control on the Western Front: The British Army's Experience 1914-18*, eds. Gary Sheffield and Dan Todman (Stroud: Spellmount, 2007), 13.

[39] Todman, "The Great War", 75.

[40] David Morgan-Owen, *The Fear of Invasion: Strategy, Politics, and British War Planning, 1880-1914* (Oxford: Oxford University Press, 2017), 6.

sought solutions within the framework of current military theory, but remained blind to the potential long term consequences of a European War.[41]

There are exceptions - Synder refers to the work by Liber, who suggested that the German leadership understood that a short war was unlikely, and possessed a more realistic view of a lengthy war featuring siege-like conditions.[42] Similarly, Herwig has researched the German archives and considers that there was some recognition of the potential for a long war.[43] With these few exceptions, however, the lack of contemporary debate on these subjects reveal a widespread belief that it would be impossible for nations to sustain themselves through a lengthy war, due to a common belief that such a conflict would lead to economic collapse. This view, as shall be explored in subsequent chapters, was shared by peace campaigners and military theorists alike. The idea of the 'cult of the offensive' at the strategic level reflected thinking that rapid offensive action was necessary to win wars, and that to fail to do so would result in disaster as nations would be unable to sustain their war efforts as their economies faltered.

In all the careful analysis of tactics by the British Army, what was missing was extrapolating from the tactical to the strategic; to take the step from appreciating the difficulties of maintaining an offensive on the battlefield, to its conclusion of strategic stalemate. A few isolated thinkers were able to make the leap and predict deadlock, but the contemporary British Army did not possess the institutions or attitude to even

[41] Interwar military writers who were critical of what they saw as the reactionary nature of the generals of the First World War had, of course, the advantage of hindsight. It is noteworthy, for example, that J. F.C. Fuller, who was immensely critical of the British Army for failing to respond to trench warfare, did not foresee the problems of the offensive before 1914. See T.H.E. Travers, "H.G. Wells and British Military Theory 1895-1916," in *War and Society: A Yearbook of Military History*, edited by Brian Bond and Ian Roy (London: Croom Helm, 1975), 67. Similarly, Fuller stressed the relevance of the American Civil War to modern war, as it had demonstrated the importance of technological change, but *after* the First World War, Tal Nimrod. "The American Civil War in British Military Thought from the 1880's to the 1930's," *Civil War History* 60(4) (2014): 431.

[42] Jack Synder and Keir Liber, "Defensive Realism and the 'New' History of World War I," *International Security* 33(1) (2008): 174-194. It should be noted that their dialogue is actually centred around international relations theory, and Liber's criticism is of only one of the pillars of the 'cult of the offensive' – that of strategic offensive action. For a more comprehensive treatment of Germany's view of a 'short war', see Holger Herwig, "Germany and the 'Short-War' Illusion: towards a New Interpretation," *Journal of Military History* 66 (2002): 681-693.

[43] Herwig, "Germany and the 'Short-War'," 692.

explore such thinking. Like its equivalents in Europe, a period of rapidly changing technology had overwhelmed the ability of the military establishments to forecast the future and adapt to change.

The British Army and Society

Individual nations responded differently to the challenges of changing technology and industrialisation, and Britain's response was conditioned by its geography. The armies of the Continental Great Powers were based around universal conscription and numbered in the hundreds of thousands, or even millions, while the British Army was made up of a relatively small number of volunteer soldiers who were deployed primarily to police the Empire. This situation was made possible because Britain possessed the most powerful navy in the world, making the Channel an effective barrier against invasion (even in the last decade before the War, at a time when aircraft were relatively primitive). The Navy also possessed a strong political lobby in its favour and when 'invasion scares' occurred, it was they who received new battleships, rather than the Army being expanded.[44]

Edward Spiers has explored attitudes to the Army in British society, including their effect on policy, and identified rising interest in the late Victorian and Edwardian press in the exploits of the Army in its role of colonial policing.[45] This was paralleled by an increase in the volume of fiction on the Empire from writers such as Kipling, although the evidence is that all of this interest did not, in practice, lead to an increase in enlistment.[46] Expansion of the contemporary press provided a forum for increased interest, with the occasional dramatic incident - such as the bloody charge of the 21st Lancers at Omdurman in the Soudan (sic) in 1898 - examined at length.[47] When such

[44] Edward Spiers, *The Army and Society 1815-1914* (London: Longman, 1980), 220.

[45] Spiers, "Army and Society," 211.

[46] Spiers, "Army and Society," 219.

[47] The contemporary spelling of what would now be called the Sudan was Soudan, and is used throughout this thesis. The Battle of Omdurman saw Lord Kitchener's British Army annihilate a much larger force of 'Dervishes' (as the follower of the Mahdi, Muhammad Ahmed, were known to the British). The British and Egyptian-Sudanese forces used massed rifle, machine gun and artillery fire to inflict 23,000 casualties on the army of

setbacks occurred, however, they were not allowed to undermine an overall impression of British triumph through superior leadership, arms and morale.[48]

John Tosh's study of the construction of masculinity in the nineteenth century also identified a rising preoccupation in the adventure fiction of the 1870s and 1880s with colonial conflict such that "overseas violence became more attractive as the legal and social suppression of male violence proceeded at home."[49] What he termed the 'middling sort' became more closely engaged with colonial exploits, and jingoistic, in the late nineteenth century, which he considered to be a reaction to feeling their masculinity threatened at home. Aggressive language was often used at the time, such as seeking 'vengeance for Gordon of Khartoum' in the Soudan.[50] Ultimately, his view is that the colonies became perceived as a sphere where military aspirations could be indulged, although this led to a dangerous misconception of what a European War could be like.[51] As Spiers' says, there was a focus on heroism and the superiority of British character and morale, while not necessarily grasping that the slaughter inflicted on the Dervish attackers (as the followers of the Mahdi were called in Britain) at Omdurman might be recreated in a European War.[52] As shall be explored below, however, some contemporary commentators in the periodicals did recognise the power of modern weapons in that battle, and understood that the consequences in a European war could be very serious indeed.

The South African War had a huge effect both on the Army, and the way in which it was portrayed in the press and fiction. The conflict proved traumatic to a nation used to its Army delivering swift victories over poorly organised and armed indigenous peoples, such as happened in the Soudan. In South Africa the Boers inflicted a series of

---

50,000 Dervishes, for a loss of 47 killed and 382 wounded. Later in the battle the 21st Lancers, numbering 400 men, encountered some Dervishes and conducted a cavalry charge, which ended successfully but at a heavy cost when they ran into a large force hidden in a defile, resulting in 70 dead or wounded. See John Ellis, *The Social History of the Machine Gun* (London: Pimlico, 1992), 86.

[48] Spiers, "Army and Society," 213.

[49] Tosh, "Masculinities," 340.

[50] Tosh, "Masculinities," 341.

[51] Tosh, "Masculinities," 342.

[52] Spiers, "Army and Society," 212.

devastating reverses on the British Army in 1899-1900, and victory was only achieved in 1902 by sending almost its entire strength to Africa and raising additional volunteer forces. For a nation that possessed the largest Empire in the world, the War "triggered absolutely fundamental questions about patriotism and national character."[53] The Army found that the weaponry available to the Boers, and the tactics they adopted, had changed warfare beyond recognition, for which it had been unprepared, and which in turn fed into debate about future European war.[54]

The reverses experienced by the Army in the Boer War forced the press to adopt highly specific language to explain events in South Africa. Glenn Wilkinson's review of the way in which Edwardian newspapers portrayed war notes that contemporary accounts used the term 'murderous fire' to describe Boer rifle fire, setting them as both criminals but also 'cowards' for refusing to stand and fight, reinforcing Wilcox's thesis that military *mores* were focused around a heroic conception of warfare and its masculinity. [55] This echoes comments of Kitchener, who disapproved of the fact that the Boers did not stand and fight (thereby allowing themselves to be mown down like the more accommodating Dervishes at the Battle of Omdurman), which is symptomatic of the way in which generals of the period can be quoted to comic effect.[56] Wilkinson's conclusion is that, regardless of the setbacks of the Boer War, the press was able to portray war as something beneficial and desirable to Britain, reinforcing prevailing attitudes towards conflict.[57] Like Tosh, Wilkinson considers that this led to a positive and deeply misguided attitude to conflict in 1914.[58]

Steve Attridge concludes that the Boer War was to fundamentally affect the way in which the soldier came to be defined, through popular literature and the music hall. It led to the name 'Tommy Atkins', as a moniker for the ordinary British soldier, which

---

[53] Steve Attridge, *Nationalism, Imperialism and Identity in Late Victorian Culture, Civil and Military Worlds* (Basingstoke: Palgrave Macmillan, 2003), 188.

[54] Attridge, "Nationalism, Imperialism and Identity,", 2.

[55] Wilkinson, "Blessings of War," 107.

[56] Attridge, "Nationalism, Imperialism and Identity," 162.

[57] Wilkinson, "Blessings of War," 98.

[58] Wilkinson, "Blessings of War," 115.

became close to a motif for the British 'race'.[59] Just as the Army was forced to change its tactics to accommodate modern firearms and an enemy which refused to fight according to the precepts of nineteenth century European warfare, literature responded to the war by reconstructing the image of the hero. Attridge considers that the novels of the period began to portray the soldier as a form of what the twentieth century would come to know as an 'anti-hero', a rugged individual closer to their Boer enemies, than a mechanistic cog in a military machine.[60] In the face of its defeats early in the conflict, these accounts allowed criticism of the officers and organisation of the Army, and promoted heroes with individuality and initiative.

The upsurge in interest in the Boer War was not limited to literature or the national press; Brad Beaven notes that local newspapers became interested in the exploits of County regiments and published first-hand accounts of 'heroic' behaviour in the field to bolster local pride.[61] This amounted to a greater engagement with imperial adventure by the working class, signifying the development of 'bottom up' associations between local pride and warfare, as opposed to the 'top down' presentation of the South African War by the national press.[62] This represented a profound change in the way the provincial press responded to Imperial endeavours, and perhaps enabled the acclimatisation of a broader range of society to warfare. What the work of Tosh, Attridge, Wilkinson and Beaven all show is the importance of the Boer War in the portrayal of conflict, which - regardless of the shock it induced - actually contributed to the idea of warfare seeming acceptable, controllable and heroic.

The Army went through a period of reflection and change after the Boer War, and Spiers believes that the reforms of Lord Roberts and later, Haldane, demonstrated that the Army could – and did - change in the face of new challenges.[63] He is positive about the state of the British Army in 1914, considering that the Haldane Reforms had made the

[59] Attridge, "Nationalism, Imperialism and Identity," 50.

[60] Attridge, "Nationalism, Imperialism and Identity," 162.

[61] Brad Beaven, "The Provincial Press, Civic Ceremony and the Citizen-Soldier During the Boer War, 1899-1902: A Study of Local Patriotism" *Journal of Imperial and Commonwealth History* 37 (2009): 217.

[62] Beaven, "Provincial Press," 224.

[63] Spiers, "Army and Society," 246.

British Expeditionary Force (BEF) the most effective Army that Britain had ever put into the field.[64] Spiers is, however, careful to note that in certain areas, such as the use of artillery, which was to prove so significant in the First World War, the Army was not as effective as its French equivalent.[65] Ian Beckett and Keith Simpson are also supportive of the effectiveness of the Edwardian Army, although they point out that the Army remained socially exclusive, with only 2% of the officers drawn from the ranks.[66] They support Travers' view that the officer corps prized amateurism, pursued the traditions of the country gentleman, and "refrained from any vulgar displays of militarism."[67]

In contrast to Spiers, Beckett and Simpson, Gerald DeGroot is unremittingly harsh regarding the Army, concluding that during the period 1899 to 1914, changes to its character had been negligible.[68] DeGroot also considers that the Navy was also resistant to change, and that the Army was dominated by a notion of character over intellect.[69] He holds that class stratification in the Army was even more pronounced than in civilian life, with the cost of being an officer – as well as the social exclusivity – ensuring that it remained the preserve of upper and middle-class families.[70] Like many historians, he draws on Travers' work and considers that the emphasis on achieving success through morale solutions was the consequence of fighting colonial small wars.[71] DeGroot's assertion that the Army learned nothing from South Africa must, however, be contrasted with military historians described above, like Travers, Bowman and Connelly, who see it

[64] Spiers, "Army and Society," 284.

[65] Spiers, "Army and Society," 281.

[66] Ian Beckett and Keith Simpson, eds., *A Nation at Arms: The British Army in the First World War* (Barnsley: Pen & Sword Books, 2014 [First Published 1985]), 64.

[67] Beckett and Simpson, "Nation at Arms," 68.

[68] DeGroot, G. J., *Blighty: British Society in the Era of the Great War* (London: Longman, 1996), 29.

[69] DeGroot's treatment of the Navy as a conservative and reactionary service stands in contrast with the work of numerous other historians. For example, see Kenneth Moll, "Politics, Power, and Panic: Britain's 1909 Dreadnought 'Gap'," *Military Affairs* 29(3) (1965): 134, and the series of five reforms imposed on the Navy by Lord Fisher. More recently, see Nicholas Lambert, "Strategic Command and Control for Manoeuvre Warfare: Creation of the Royal Navy's War Room System, 1905-1915," *Journal of Military History* 69 (2005): 408, who describes the Navy's War Room as a revolutionary development in naval command and control. Although both of these historians, and others, agree that there was resistance to Fisher's reforms, they consider them carried through successfully.

[70] DeGroot, "Blighty," 19.

[71] DeGroot, "Blighty," 17.

as being central to the development of 'fire and movement' which remained the bedrock of British Army tactics throughout the First World War.[72] DeGroot plays down the impact of reform after the South African War and does not compare the relatively 'modern' tactics employed by the British Expeditionary Force (BEF) in 1914 with those of the French and German armies, who also struggled in the face of the changed conditions at the beginning of the War.

DeGroot holds that social inertia acted as a barrier to the reform of the Army, but Spiers points to another prosaic reason: finance. Even after the Boer War, the Government, and particularly the Liberal Party, fiercely opposed increases in spending on the Army.[73] For example, during the formation of the BEF, which was developed as a force to intervene quickly on either the Continent or India, it proved impossible to raise the Army Estimates beyond £28m, although Haldane wanted to increase them to around £30m. The BEF was, therefore, the largest it could be, given the available budget, rather than being designed to meet the needs of the nation or any potential Continental engagement.[74] This reinforces the point made by Morgan-Owen that the government lacked a coherent strategy for fighting a European War, and even if it had, funding was likely to be inadequate.[75] Another aim of the Haldane Reforms was to develop a trained reserve capable of supplementing the Regular Army, but for all the intermittent fear of invasion evident in the literature of the time, the Territorial Army, failed to reach its planned size, reaching 302,000 in 1908, which was only a third of its envisaged size, before declining further after 1909.[76] In this case the problem was not financial, but another example of how interest in imperial adventure and fear of invasion failed to materialise into increased recruitment.

---

[72] Chris McCarthy, "Queen of the Battlefield: the Development of Command, Organisation and Tactics in the British Infantry Battalion during the Great War," in *Command and Control on the Western Front: The British Army's Experience 1914-18*, eds. Gary Sheffield and Dan Todman (Stroud: Spellmount, 2007), 174.

[73] Spiers, "Army and Society," 266.

[74] Spiers, "Army and Society," 270.

[75] Morgan-Owen, "Fear of Invasion," 6.

[76] Beckett and Simpson, "Nation at Arms," 128.

Beckett and Simpson also identify the financial motivations which underpinned the Haldane reforms.[77] They also raise the difficulties the Army had in recruiting officers, despite the establishment of the Officer Training Corps (OTC), noting that there was little take up from universities.[78] This was down to the narrow social base from which the Army drew its officers, the need to have a private income (particularly in the cavalry), which puts into question its professionalism.[79] While the standard of technical and scientific education in the Royal Engineers was seen to be high, there were often few chances to train in other branches of the Army, with little professional development available to officers.[80] Therefore, while there was debate on the changing nature of war in the face of new rifles and artillery, as discussed above, an air of amateurism continued to hold sway over parts of the Army.[81] Nonetheless, Aimee Fox, in her study *Learning to Fight* concludes that the British Army before the War was moving towards a more intellectual engagement with military practice. For example, she notes that the Field Service Regulations of 1909 were deliberately abstract, through a deliberate decision to avoid dogma and inculcate initiative in the Army. [82]

Tellingly, at the outbreak of war, there were no plans on how to expand the volunteer Army beyond its current size, indicative of a lack of strategic planning and the faith – shared with many other nations – that a European war would have to be short.[83] Yet, while funding for the Army remained lower than reformers would have liked, and recruitment a challenge, the South African War also led to more profound reflections on the state of British society and the Empire. As Van Evera noted in his formulation of the 'cult of the offensive', many contemporary intellectuals were affected by the ideas of Social Darwinism, such that nations would 'rise' or 'fall' based on their ability to compete

[77] Ian Beckett, Timothy Bowen and Mark Connelly, *The British Army and the First World War* (Cambridge: Cambridge University Press, 2017), 8.

[78] Beckett *et al*, "British Army," 21.

[79] Beckett *et al*, "British Army," 21.

[80] Beckett *et al*, "British Army," 27.

[81] Beckett *et al*, "British Army," 41.

[82] Aimee Fox, *Learning to Fight: Military Innovation and Change in the British Army 1914-18* (Cambridge: Cambridge University Press 2018), 31.

[83] Beckett *et al*, "British Army," 46.

globally.[84] The poor physical quality of many volunteers to the Army during the Boer War led to a fear that the 'Anglo Saxon race' was degenerating through a failure to maintain 'civilising ethics'.[85] This led, as Beaven reports in his survey of attitudes to youth in the Edwardian period, to the formation of a number of organised youth movements with an emphasis on outdoor activities.[86] He identifies a historiographical debate as to whether the Scouts represented a paramilitary organisation, reflecting a contemporary debate which highlighted the deep rooted British fears over conscription.[87]

Putting aside DeGroot's harsh view of the British Army, the historiography is clear that the South African War resulted in reform, at least by as much as its social structure could allow. The result was a BEF which is considered to have been a more capable force than its Continental equivalents, except for the fact that it was relatively small and therefore irreplaceable, with no plans on how to build a larger army. Although the Army focused on practical measures such as 'fire and movement', there was a popular perception, reinforced through colonial conflicts, that war was a controllable, beneficial and decisive endeavour.[88] The reality of a European general war, fought between industrial powers faced with trench deadlock and required to mobilise all their resources for a lengthy conflict, was to prove otherwise, but such a war was not considered, emphasising the way in which contemporary debate was focused on tactics and not strategy. As shall be discussed in the main body of the thesis, the Army lacked the intellectual framework to engage with how firepower on the battlefield would affect the outcome of a Great War in Europe.

---

[84] Geoffrey Wawro, *Warfare and Society in Europe 1792-1914* (Abingdon: Routledge, 2000), 125 and John Gooch, "Attitudes to War in Late Victorian and Edwardian England," in *War and Society: A Yearbook of Military History*, eds. Brian Bond and Ian Roy (London: Croom Helm, 1975), 99.

[85] Brad Beaven, *Leisure, Citizenship and Working Class Men in Britain 1850-1945* (Manchester: Manchester University Press, 2005), 89. It is worth noting that Baden-Powell, the founder of the Scouts, claimed that Rome fell due to a collapse in citizenship, reflecting a common contemporary fear that European civilisation was in jeopardy.

[86] Beaven, "Leisure," 91.

[87] Beaven, "Leisure," 95.

[88] Spiers, "Army and Society," 208.

The Cavalry

One vigorous strand of contemporary debate reinforces the debates on tactics and the attitudes of the British Army, and that was the armament and role of the cavalry. During, and after, the Napoleonic Wars, cavalry were used for scouting and for 'shock' effect on the battlefield, using the charge to break wavering infantry formations or to turn a victory into a rout by pursuing a retreating army. By the mid-nineteenth century, however, military commentators had begun to question its role on the battlefield because of the emergence of rifles which enabled infantry to fire more rapidly and at longer ranges, calling into question the cavalry's ability to deliver a successful charge.[89] As the decades passed and technology delivered ever more effective rifles, followed by machine guns and quick-firing artillery, this debate intensified, with some military commentators, such as Ian Hamilton in the 1880s, going so far as to suggest that cavalry should be replaced completely by fast-moving light infantry.[90] In the face of no realistic alternative, however, the majority of commentators thought cavalry were essential to allow troops to move rapidly away from railheads, although many argued that they would have to dismount and fight with rifles, just as the Boers had in South Africa.[91] Yet the British cavalry, like its European contemporaries, went to war in 1914 armed with lance and sword, as well as rifle, and every intention of conducting charges on the battlefield.

In practice, however, the opportunities for decisive action on the Western Front were limited to short periods in 1914 and 1918, apparently demonstrating that the proponents of the *arme blanche* (literally, 'white steel', which was the contemporary term for the use of edged weapons on the battlefield) had been guilty of refusing to accept the realities of modern war. This view of the cavalry as backward looking, unimaginative and culpable in the deadlock of trench warfare was taken up by post-War military writers and historians such as J. F. C Fuller and Basil Liddell Hart, who were

[89] Gervase Phillips, "Who Shall Say That the Days of Cavalry are Over?' The Revival of the Mounted Arm in Europe, 1853-1914," *War in History* 18(1) (2011): 5.

[90] Stephen Badsey, *Doctrine and Reform in the British Cavalry 1880-1918* (Aldershot: Ashgate, 2008), 26.

[91] Wawro, "Warfare and Society," 142.

both advocates of mechanised warfare and scathing of the cavalry in 1914. Many later historians have agreed with their verdict, such as Taylor, who wrote in 1964 that "military history had not prepared the generals for the warfare of 1914-1918. The cavalry was not alone in this dilemma, but it certainly was eclipsed by the other services in corrective measures."[92] More recently, John Ellis and DeGroot have been critical of the cavalry and its inability to develop tactics appropriate to 1914, as well seeing in them a wider symptom of the failure of armies to recognise the nature of the war into which they were to plunge.[93] DeGroot considers that this arose out of both the high social standing of the cavalry and the cultural conception of the *arme blanche*, with its man-to-man combat, which personified the "gentlemanly qualities and moral fortitude which the army prized."[94]

The last two decades have seen a number of historians challenge these views. Gervase Phillips, for example, goes so far as to consider that they have become a historiographical scapegoat and criticises Taylor, Bond and Spiers, amongst others, for failing to engage closely enough with contemporary military documents.[95] Phillips considers that the treatment of the cavalry – and the British cavalry in particular – forms part of the mythology of the First World War and that historians have failed to appreciate how contemporary cavalrymen drew lessons from previous wars and evolved their tactics to meet new challenges.[96] Phillips points out that several historians use a quote from the 1907 British Cavalry Training Manual as evidence of the conservative and irrational nature of the cavalry: "it must be accepted as a principal that the rifle, effective as it is, cannot replace the effect produced by the speed of the horse,

[92] William Taylor, "The Debate over Changing Cavalry Tactics and Weapons, 1900-1914" *Military Affairs* 28 (1964): 182.

[93] Ellis, "Social History," and DeGroot, "Blighty". See also William McElwee, *The Art of War: Waterloo to Mons* (London: Purnell Book Services, 1974).

[94] DeGroot, "Blighty", 21

[95] Gervase Phillips, "Scapegoat Arm: Twentieth-Century Cavalry in Anglophone Historiography," *The Journal of Military History* 71 (2007): 63.

[96] Gervase Phillips, "The Obsolescence of the Arme Blanche and Technological Determinism in British Military History," *War in History* 9(1) (2002): 40.

the magnetism of the charge, and the terror of cold steel."[97] Phillips, however, notes that the manual also stated that "thorough efficiency in the use of the rifle and in dismounted tactics is an absolute necessity."[98]

Stephen Badsey has also examined the role of the British cavalry in the South African War and its doctrinal development from the 1880s to the First World War, and suggested that it was the best equipped in Europe to face the challenges of the War[99] He identifies the fact that contemporaries such as Lord Roberts, Commander-in-Chief of the Army after leading Britain to victory in the South African War, who was a critic of the *arme blanche*, and later historians, failed to recognise that the tactics of the charge also included attacking in open, 'skirmish' order, with smaller formations, reflecting changed battlefield conditions. Badsey is, however, still careful to note that the traditional close order 'knee to knee' charge also performed a social function and agrees with Bond that it approached being a way of life to the cavalry.[100] Badsey's analysis echoes that of the broader debate between historians who see the irrational 'cult of the offensive' at the heart of military strategy and tactics in 1914, and those who see a more rational attempt to meet the technological challenges of the time.

Phillips and Badsey provide numerous examples of successful British cavalry charges in the First World War, both on the Western Front and in other theatres, providing evidence for their theses that their pre-War doctrine of using both the rifle and the *arme blanche* was justified in practice. Nikolas Gardner, however, is one historian who believes that Badsey (and Terraine) have written too uncritically about the effectiveness of the British cavalry in 1914.[101] He researched how the British Cavalry Division

---

[97] Ellis, "Social History," 55. This precise quote is also used by Richard Holmes, *The Western Front,* (London: BBC, 1999), 35. With knowledge of what was to come in 1914, such statements appear, as Bond says, "extremely foolish – and highly quotable", Brian Bond, *War and Society in Europe 1870-1970*, (Stroud: Sutton Publishing, 1998 [first edition 1984]): 50.

[98] Phillips, "Scapegoat Arm", p.41.

[99] Stephen Badsey, 'The Boer War (1899 – 1902) and British Cavalry Doctrine: A Re-Evaluation', *Journal of Military History* 71, 2007: 76.

[100] Badsey, "Doctrine and Reform", 17.

[101] Nikolas Gardner, "Command and Control in the "Great Retreat" of 1914: The Disintegration of the British Cavalry Division," *The Journal of Military History* 63, 1, (1999): 230. He is not alone in his criticism; see Barr,

effectively disintegrated during the retreat in 1914, and considers that social and intellectual factors contributed to its failure to operate successfully. The cavalry prided itself on what contemporaries called 'cavalry spirit', a mix of independent thinking, boldness and intuition which meant that senior officers tended to disagree with one another and even to ignore orders. As a consequence the different Brigades of the Division lost contact with one another when retreating in September 1914, and did not act effectively, placing the whole of the BEF in jeopardy.[102]

Although Badsey and Phillips present convincing evidence that the British cavalry in 1914 were thinking intelligently about their role, cavalry were *not* central to the outcome the First World War. Indeed, the War is considered to have been dominated by massed artillery fire, as Bailey's work demonstrates.[103] What the volume of contemporary debate illustrates forcibly is the high social standing of the cavalry, which is a point of agreement between historians with widely different perspectives on their utility, such as DeGroot and Badsey. The much discussed issue of cavalry 'fire vs shock' mirrors, and forms a microcosm of, the debate on 'the cult of the offensive'. Contemporary military writers, as shall be explored later in this thesis, expended a lot of ink on the future of the cavalry, and the debates of the contemporary theorists continue to engage historians, out of proportion to the actual importance of the arm at the time. The cavalry may have unfairly become a scapegoat for some later historians, but in reality they were becoming less significant on a battlefield where their freedom of action was rapidly reducing. Their failure to see that they would become obsolescent reflects the way in which contemporary military establishments saw technology as only augmenting, or modifying, the practice of war. What the thesis will show is that motor vehicles and aircraft, which would come to replace them, were seen only as adjuncts to horsed cavalry in the decades before the First World War. The eternal principles of war, as seen by contemporaries, were to remain unchanged.

"Command in the Transition," 17. Barr considers that the reconnaissance of the Cavalry Division during the retreat from Mons to be poor, leading to aircraft becoming essential in conducting this role.

[102] Gardner, "Command and Control," 53.

[103] See Bailey, "First World War," and also Terraine, "Smoke and the Fire," 173.

Imagining the Next War

As noted above, there was intense interest in the defence of Britain, and the role of its Army, during the period. Contemporaries understood that they were living through a period of profound political, social and technological change, and this contributed to an outpouring of fiction dedicated to imagining future war in the period between 1870 and 1914. Although such accounts had been written as early as the eighteenth century, it was only in the last thirty years of the nineteenth century that the impact of changing technology on conflict was recognised.[104] In Britain, in particular, this form of literature would become irrevocably linked to the threat of invasion, and I. F. Clarke, in his survey of imagined wars, considers George Chesney, whose *The Battle of Dorking* was published in 1871, to be the first writer to create a recognisably modern account of future warfare. Chesney imagined the defeat of Britain by German invaders, whose discipline and military ability contrasts with the amateurism and weakness of the British defenders. In the light of the recent defeat of France by Prussia and its German allies, which had changed the European balance of power, Chesney's purpose was polemic and led to a flood of European - and later American – writing on 'the next war'.[105]

Clarke has written extensively on the literature around imaginary wars, including the period 1870-1914.[106] In this period he distinguishes between primarily political works and those interested in the impact of technological change. The former were those stories which responded to contemporary concerns over the perceived rise of Germany or relative decline of Britain, including examples of the 'invasion scare' genre, such as

---

[104] I.F. Clarke, *Voices Prophesying War 1763-3749* (Oxford: Oxford University Press, 1992), 5. Clarke considers the story 'The Reign of George VI, 1900-1925' to be the earliest account of a future war to be committed to paper, written by an anonymous author in 1763. In this utopian vision of the future the eponymous king leads his armies and navies into battle with the Russians in the style of eighteenth century wars, complete with ships of the line and infantry advancing in close order. As Clarke says, there is something quaint in the fictional description of battles fought in the imaginary war of 1917-20, which contrast strongly to the actual conflict in Europe at precisely the same time.

[105] Clarke, "Voices Prophesying War," 38.

[106] I.F. Clarke, *The Pattern of Expectation 1644-2001* (London: Jonathan Cape, 1979); I.F. Clarke, ed., *The Tale of the Next Great War, 1870-1914: Fictions of Future Warfare and of Battles Still-to-come* (Liverpool: Liverpool University Press, 1995); Clarke, "Voices Prophesying War"; and Clarke, I. F. ed., *The Great War with Germany 1890-1914*: Fictions and Fantasies of the War-to-come. Liverpool: Liverpool University Press, 1997.

The Great War of 189-: A Forecast (1892) written by a panel of writers led by Admiral P. Colomb. The latter were instead focused on technological change and its potentially disruptive effect on future war, such as Arthur Conan Doyle's short story *Danger!*, which was published on the eve of the First World War, postulating an enemy of Britain successfully conducting unrestricted submarine warfare on its merchant shipping.[107] As well as providing entertainment, these accounts either criticised the Government for a lack of attention to the threat of invasion, or attacked the War Office for its conservatism and failure to engage with new means or weapons for waging war.[108]

Another writer who has written a lengthy analysis of the treatment of future war in the period is Echevarria, whose analysis includes military writers such as the German theorists Goltz and Friedrich von Bernhardi, who penned factual treatises on the future of war. He draws a distinction between military and civilian writers, concluding that the former tended to present warfare within the framework of contemporary military practice; while the latter tended to focus on new technologies for a variety of reasons, including entertainment value.[109] Echevarria is careful, however, to highlight the overlap, and links between, these categories, and points out how military writers – often retired – wrote extensively in the civilian press.[110] Overall, he concludes that while there was plenty of imagination on display in the accounts of war on land, sea and in the air, the more technologically focused stories tended to be illogical, or at least failed to be convincing.[111] Paris shares Echevarria's views on civilian writers, also concluding that while there were accounts of spectacular new weapons, most vividly evident in the use of airships and aerial bombardment, they did not necessarily display a great deal of realism.[112] Yet in contrast to the technological novelty on display, most accounts are

[107] Clarke, "Voices Prophesying War," 90.

[108] Michael Paris, *Warrior Nation: Images of War in British Popular Culture, 1850-2000* (London: Reaktion Books, 2002): 99.

[109] A. J. Echevarria, *Imagining Future War: The West's Technological Revolution and Visions of Wars to Come 1880-1914*, (London: Praeger Security International, 2007): 98.

[110] Echevarria, "Imagining," 99.

[111] A. J. Echevarria, "Imagining," 97.

[112] Paris, "Warrior Nation," 100.

based around conventional views of heroism and chivalry, which Paris – like Wilkinson, Wilcox, Tosh and Attridge – believes contributed to a willingness to go to war in 1914.[113]

Samuel Hynes specifically links contemporary intellectual concerns over the degeneracy of the nation – so evident after the Boer War - to 'invasion literature', with William Le Queux's *Invasion of 1910*, published in 1906, including statements to the effect that the peasantry, who he saw as the backbone of the nation, had been replaced by weak, excitable civic populations.[114] Le Queux's work illustrates the ways in which politicians engaged with, and used, the genre of invasion literature to pursue their own agendas, with Heather Streets noting that Lord Roberts provided advice to the *Invasion of 1910* as well as the predecessor, *The Great War in England in 1897*, published in 1894. [115] Streets points out that Roberts engaged frequently with the press, as did other leading military figures of the time such as Field-Marshals Wolseley and Kitchener, and after resigning as Chief of Imperial Defence (CID) in 1905, became the President of the National Service League, with the aim of building up a trained force of riflemen to resist invasion.[116]

Gooch recognises that while many works which examined future warfare were technical in nature, they tended to lead on to moral and philosophical discussion, with the prominent view that war could be a 'medicine' to cure the ills of a society which was seen as decadent; it being something a obsession to look on the ruins of Rome, Carthage and Greece and see in them a prediction of the fall of contemporary civilisation.[117] One prominent intellectual view was that war could be a positive force to regenerate civilisation and avoid moral collapse, although Gooch does identify alternative views of warfare, such that that it could ultimately be destructive through economic dislocation and a diminishing of their civilising value.[118] Whatever the viewpoint, however, as

[113] Paris, "Warrior Nation," 108.

[114] Samuel Hynes, *The Edwardian Turn of Mind*, (London: Pimlico, 1991 [First published 1968]), 42.

[115] Heather Streets, "Military Influence in Late Victorian and Edwardian Popular Media: The Case of Frederick Roberts," *Journal of Victorian Culture* 8 (2003): 247. It is notable that in the imaginary war of 1897 the invaders are Russian but that by 1910 they are Germans, reflecting the changing politics and fears of the time.

[116] Streets, "Frederick Roberts," 248.

[117] Gooch, "Attitudes to War," 95.

[118] Gooch, "Attitudes to War," 95.

Hynes says, "anxiety and the expectation of war were part of Edwardian consciousness.[119] Gooch is in broad agreement, considering that the 'rationalists' of the time, as he calls them, had been losing ground in the years before the War making Britain, like most of Europe, all too willing to plunge into war in 1914.[120]

Much has been written about two writers whose work lies at the heart of this thesis, H. G. Wells – especially - and Jean de Bloch (also known as Ivan Bloch). Wells remains famous to this day, as author of some of the most prominent and influential works of science fiction, and social commentator, as well as a contentious figure for his views on eugenics and the construction of an ideal society.[121] Bloch, who is today far less well known, was a Polish industrialist and banker who became prominent at the turn of the century. His chief claim to fame was that, in 1898, he published a six volume tract entitled *War of the Future in its Technical, Economic and Political Relations*, abridged to only the final volume in English and entitled *Is War Now Impossible?* Bloch analysed the impact of technological and economic change on warfare, and concluded that a future European war would lead to stalemate and the collapse of nations.[122] His reasoning was that technology had come to favour the defender, and that the longer range of armaments and growing size of national armies would lead to deadlock on the battlefield. Bloch also concluded that the inter-related nature of the economic system would lead to an inability to finance wars over anything but a short period. His work was widely discussed across Europe and is considered to have played a role in persuading Czar Nicolas II to call the First Hague Peace Conference in 1899.

Historians differ in their verdicts on Bloch; Echevarria, for example, considers his arguments to be rather one-sided, noting that he was wrong in his assessment that the global economic system would collapse in a matter of months, or that such fears would

[119] Hynes, "Edwardian Turn," 53.

[120] Gooch, "Attitudes to War," 99.

[121] Biographical details from The Oxford Dictionary of National Biography, www.oxfordnb.com, entry for Herbert George Wells (1866-1946), https://doi.org/10/1093/ref:odnb/36831

[122] Niall Ferguson, *The Pity of War: 1914-1918* (London: Penguin Books, 1998), 9.

act to prevent war.[123] Howard, on the other hand, cites Bloch's work as a systematic endeavour and he calls it the first work of operational research – the discipline of applying mathematical techniques to wartime operations which was developed fully in the Second World War.[124] Ferguson, although not without criticism, acidly concludes that what Bloch wrote was "singularly prescient, the more so when one compares it with the rubbish written by the scaremongers."[125] As this thesis will demonstrate, Bloch's work was fiercely debated in Britain at the turn of the century, particularly as its publication coincided with the outbreak of the South African War. Bloch was not writing fiction, but was, as Echevarria notes, a civilian writing outside the accepted structure of military thinking, and criticised for it by commentators from the British Army. It is the novelty of his approach, recognised by some contemporaries, that marks him out from other writers who attempted to predict the future of war.

Wells stands somewhere between the analytical approach of Bloch and the bulk of the invasion literature of the time. Travers considers Wells to have been a serious student of warfare and one who – along with Haldane, who led the reforms of the British Army after South Africa – formed part of a group of military reformers called the 'co-efficients'.[126] Wells believed, after absorbing Bloch's work, that a future war would begin with trench deadlock, but saw new technology such as the aircraft (envisaged in *The War in the Air*) and armoured vehicles (Wells' story *The Land Ironclads* portrayed an early imagining of tanks) as enabling a breakthrough. More emphatically, he saw the stress of war creating a new form of state dominated by a technological elite capable of pursuing its conduct to eventual victory.[127] He believed that any future general war would be immensely destructive but welcomed it as an opportunity to bring about the transformation in society, in a viewpoint not dissimilar to those who saw war as ending

[123] Echevarria, "Imagining Future War," 44. See also Ferguson, "Pity of War," 10. The peace campaigner Normal Angell took a similar stance to the economic consequences of a European War in *The Great Illusion,* first published in 1909.

[124] Howard, "Men Against Fire," 41.

[125] Ferguson, "Pity of War," 9.

[126] Travers, "H.G. Wells," 70.

[127] Travers, "H.G. Wells," 72.

the perceived decadence in contemporary society.[128] Hynes considers that Wells was engaging fully with the future of war, albeit concluding that his analysis was based less on radical thinking than the melancholy which infected much of the literature at the time.[129] This thesis will also focus, in particular, on Wells' *Anticipations*, a systematic forecast of the future first published in 1901. Although often a focus for historiographical analysis of Wells' views on eugenics, *Anticipations* was the first coherent attempt to predict the future, including that of war, foreshadowing the development of the discipline of 'futures studies' in the later twentieth century.

The rich literature – and factual excursions - dedicated to future war, whether it was from military or civilian contributors, provides an insight into cultural anxieties brought about by rapid changes in technology and the European balance of power. The imagination exhibited by some writers was considerable, and with so much to pick from, it is possible to find accurate predictions, amongst a great deal of unbounded speculation. Much of the historiography is concerned, understandably, with what writers and commentators got 'right' or 'wrong', which provides a useful framework for understanding social attitudes, but what can go unremarked are the methods used to interrogate the future. As this thesis will demonstrate, few writers – and particularly military writers - ventured very far into the future, and the two who approached its interrogation with true novelty were Wells and Bloch, whose approaches stand in contrast to the majority of their contemporaries.

Science and Quantification

Bloch's *Is War Now Impossible* was greeted by contemporaries as a work of 'science'; Wells wrote extensively on the need for society to become 'efficient' through its practice. They were not alone - many others considered that they were living in an age of science, or at least one that was witnessing its ascent. Peter Bowler, in his *History of the Future*, considers that the twentieth century marked the point where it was widely accepted

[128] Travers, "H.G. Wells," 82.

[129] Hynes, "Edwardian Turn," 45.

that the future would be different to the present, through the increasing influence of science and technology, although this thesis shows that there was a growing recognition in the periodicals that this was the case in the decades leading to the turn of the century.[130] Just as society was changing in response to new technology, so was the *way* in which the future was being interrogated. There is a considerable historiography, which is explored below, on the way methods of prediction became more 'scientific', in the parlance of the time, encompassing economics, weather forecasting and other disciplines, which are linked by the rise in quantification and the increasing impact of the scientific method. In other words, while Wells and Bloch stand out for the novelty of the ways in which they sought to understand the future, they were living in a time when science was becoming more important across a wide range of disciplines.

Meteorology is a good place to start, because Katherine Anderson's work *Predicting the Weather* places its development within the broader social context of prophecy and forecasting in the late nineteenth century. The concept of looking to the future within a framework of religious prophecy was well understood in Victorian times, such that "prophecy was simply a commonplace of Christian experience, the subject of texts regularly encountered by a church or chapel-goer."[131] What emerged alongside this religious view of prophecy, however, was the conviction that science could provide an alternative way of predicting the future. More profoundly, scientists came to see that their ability to provide accurate predictions demonstrated the powers of science.[132] Emerging out of astronomical predictions – such as the discovery of a 'new' planet, Neptune, in 1846, through the analysis of orbital trajectories – science began to be seen as offering the promise of successful prediction, perhaps even of human nature. Meteorology, so important to Britain's maritime trade and power, was a clear target for the application of scientific prediction, and it was in August 1861 that the first Director

[130] Peter Bowler, *A History of the Future: Prophets of Progress from H.G. Wells to Isaac Asimov* (Cambridge: Cambridge University Press, 2017), 15.

[131] Katherine Anderson, *Predicting the Weather* (Chicago & London: University of Chicago Press, 2005), 31.

[132] Anderson, "Predicting the Weather," 16.

of the Meteorological Department of the Board of Trade adopted the new term 'forecast' for a prediction of the weather.[133]

As Anderson puts it, the period saw a philosophical debate to understand the relationships between astronomical prediction, geological science, astrology, Biblical prophecy and the interpretations of contemporary politics.[134] As science sought to establish itself more firmly in the matter of prediction, meteorology became an area of investigation for scientific forecasting. The way forward was, however, far from straightforward or successful, and although it advanced through the communication of information by telegraph from remote stations, the use of quantification to successfully make predictions proved more difficult. In fact, as Kristine Harper says, it was not to be until the middle of twentieth century that meteorology was able to make use of electronic computing to accurately generate weather forecasts.[135] This was due to the sheer amount of data required, and when Lewis Fry Richardson attempted the numerical analysis of the weather during the First World War, he concluded that it took six weeks to predict six hours of weather.[136] Until the introduction of computers, accurate forecasting was simply impossible.

Just as meteorology was attempting to apply quantitative methods in the second half of the nineteenth century, so too was economics. As Roger Backhouse says in his general history of economics, the discipline began to make use of ideas from science, such as the mechanics of Newtonian physics or Darwinism, so that "economics moved, or at least appeared to move, away from its origins in political philosophy."[137] Just as Darwin was seen as moving science into the realm of what had previously been religion, Backhouse sees parallels with the increasing professionalisation of economics, as with many other disciplines, noting the emergence of specialised journals such as the *Quarterly Journal of*

[133] Anderson, "Predicting the Weather," 15.

[134] Anderson, "Predicting the Weather," 16.

[135] Kristine Harper, *Weather by the Numbers: the Genesis of Modern Meteorology (*Cambridge, Mass.: MIT Press, 2008), 2.

[136] Anderson, "Predicting the Weather," 291.

[137] Roger Backhouse, *The Penguin History of Economics* (London: Penguin, 2002), 167.

Economics, which commenced publication in 1886.[138] More specifically, as with meteorology, the 1870s saw a rise in the use of mathematics in economics, although it remained a minority activity, and it was not until the 1930s that they became widely used as a tool in the prediction of economic trends.[139]

Marx was explicitly interested in forecasting the future shape of society, or rather in suggesting the way in which history would develop in the future. Wendell Bell, in his evaluation of the development of futures studies, considers Marx as a key figure who foreshadowed the development of this discipline, who sought to base his work on analysis and to "condemn utopias and [deny] his own utopian intentions."[140] Marx certainly considered his work to be based on scientific principles and was critical of other socialist writers for their utopianism, although Bell considers that his work remained a mix of the analytical and prophetic.[141] Nonetheless, Marx used evidence, formulated theories and developed reasons behind his predictions into the future, and did not consider the future uncertain.[142] John Kenneth Galbraith, in his history of economics, acknowledges his commitment to the application of the scientific method.[143]

Bell considers futures studies to have emerged as a discipline in the 1950s, but reaches back to Marx and those utopians who wrote about the future as a place where an ideal society may come to exist. He makes the point that the placement of utopias at a future *time,* rather than in a distant *place,* came into being towards the end of the eighteenth century as part of a general recognition of change being directional rather than cyclic.[144] He identifies the 'first futurist' as being the Marquis de Condorcet, who advocated the

[138] Backhouse, "Economics," 166. The publication of Darwin's *Origin of Species* in 1859, and its proposal of a scientific means to explain the evolution of life, promoted intellectual debate, and led to the emergence of Social Darwinism, which attempted to apply survival by natural selection to society, politics and international relations.

[139] Backhouse, "Economics," 237.

[140] Wendell Bell, *Foundations of Futures Studies Volume 2: Values, Objectivity and the Good Society*, (London: Routledge, 2018 [First Published 1997]), 46.

[141] Bell, "Future Studies Volume 2," 47.

[142] Bell, "Future Studies Volume 2," 57.

[143] John Kenneth Galbraith, *A History of Economics: the Past as the Present*, London: Penguin Books (1987), 4.

[144] Bell, "Futures Studies Volume 2," 37.

application of statistical methods to the study of society. During the nineteenth century many more utopian writers, who were also often socialists, wrote about the future, which in turn prompted Marx to try and distance himself from their efforts.

Clarke, in his historical examination of imagined futures, cites Karl Pearson, the pioneer of biometrics and propagandist of eugenics, as an early thinker who considered it possible to make forecasting into a science.[145] Clarke also identifies a number of other writers working around the turn of the century who sought to apply statistical methods to forecasting, such as Prince Kropotkin.[146] Another was Charles Richet in 1892, with *Dans cents ans,* which put forward a view that war would soon become impossible due to the casualties accompanying modern warfare.[147] As shall be seen below, he was not alone in making this assertion, which became prominent in the 1890s, but Clarke notes that Richet used 'straight line prediction' – the linear projection of trends into the future - to accompany his views.[148]

The period was one of growing awareness of the impact of science and technology on Britain and the wider world. As Peter Broks points out, contemporaries understood that they lived in the first mass industrial society.[149] David Edgerton agrees that that the nineteenth century saw the emergence of the idea of science and technology advancing more quickly than the ability of human society to adapt to its impact; although his study *The Shock of the Old* challenges the conventional model of rapid technological adoption.[150] What is more important for this study is, however, the contemporary perception of scientific advance and impact on society, which was a preoccupation at the turn of the nineteenth century, although Broks nonetheless identifies a twenty-five percent fall in editorial space given over to science, across all publishers and titles in the

[145] Clarke, "Pattern of Expectation," 219.

[146] Clarke, "Pattern of Expectation," 207.

[147] Clarke, "Pattern of Expectation," 156.

[148] Clarke, "Pattern of Expectation," 193.

[149] Peter Broks, *Media Science Before the Great War* (Basingstoke and London: Macmillan Press, 1996), 28.

[150] David Edgerton, *The Shock of the Old: Technology and Global History since 1900* (London: Profile Books, 2019), xx.

period.[151] Broks attributes this to the collapse in early Victorian optimism due to the trauma of the South African War, and concludes – echoing Hynes and other historians – that disquiet over the rise of science was a feature of the Edwardian period.[152] An example lies in an attack launched on *Pearson's Magazine* in 1900 on Wells' vision of a mechanised utopia, critiquing the dangers of technology.[153] He also points to another example of contemporary fears: Cassell's *Saturday Journal* contained an article stating that time-saving machinery would lead to job losses in 1902.[154] This must be contrasted, however, with Bowler's view that the period saw the emergence of popular science magazines, most successfully in the USA, which tended to portray the more mechanical advancements of science in a positive light.[155]

Harold Perkins' study *The Rise of Professionalism* emphasises the way in which various disciplines were becoming more quantitative by charting the way in which a professional class emerged and expanded in Britain after 1880, as a fourth category separate to the traditional divisions of aristocracy, capitalists and workers.[156] Perkins' thesis is that "professional men were the theorists, apologists and propagandists for the major classes of the new industrial society."[157] He provides illuminating statistics about the rise of the middle class as the government and industry required new administrators and supervisors, quoting a rise in the percentage of non-manual workers from 17% in 1880 to 27% in 1913.[158] Even more tellingly, from the perspective of the rise of science and quantification, he quotes an increase of more than 400% in professionals over the same period, a higher rate of increase than any other category of profession, albeit still only making up 3% of the total at the end of the period.[159]

[151] Broks, "Media Science," 111.
[152] Broks, "Media Science," 111.
[153] Broks, "Media Science," 114.
[154] Broks, "Media Science," 116.
[155] Bowler, "History of the Future," 17.
[156] Harold Perkins, *The Rise of Professional Society: England since 1880*, (Abingdon: Routledge, 2002), 117.
[157] Perkins, "Professional Society," 118.
[158] Perkins, "Professional Society," 79.
[159] Perkins, "Professional Classes," 80.

Perkins explicitly contends that this increase in professionalism was accompanied by a rise in quantification, such that – for example – in relation to poverty, "what was new in the 1880s was determination to get at the statistical facts, to quantify the precise effect of poverty and its causes."[160] Clarke, noted above, also discusses the rise of quantification in the nineteenth century, placing this within the context of the emergence of 'deep time', through geological enquiry, in the 1830s.[161] More broadly, and later, Clarke identifies the emergence of the first social workers, town planners, statisticians, civil servants and sociologists; citing as an example of their impact the work *Des Agglomerations urbaines dans l'Europe Contemporarie* by Paul Meuriot in 1898.[162] Specifically he notes that "the principal periodicals responded to the interest in the future by providing an increasing number of articles in which statisticians joined with sociologists and politicians in forecasting the shape of things to come."[163]

Operational research, the application of mathematical methods to management problems, including those of war, is considered to have originated in the 1930s and to have come into regular use in the Second World War.[164] The earliest origins of operational research are, however, traced to 1905 by Maurice Kirkby, who cites the work of Rear Admiral J. V. Chase of the US Navy. This work prefigured that of Lanchester in 1916, who set out his mathematical 'Laws of Combat' which are still debated today.[165] Kirkby demonstrates that the roots of the discipline emerged in the period, although he does not cite Bloch's work. Kirkby also identifies precursors who applied scientific methods, noting that, for example, private companies such as Vickers were already, from the 1880s onwards, applying 6-12% of their annual profits to their scientific departments.[166] It was not until the First World War, however, that the stresses of industrial war moved Governments to apply scientific methods to the

[160] Perkins, "Professional Classes," 31.

[161] Clarke, "Pattern of Expectation," 58. 'Deep time' was the concept of geological time lasting many millions of years, as opposed to a Biblical concept of history being limited to a few thousand years.

[162] Clarke, "Pattern of Expectation," 173.

[163] Clarke, "Pattern of Expectation," 181.

[164] Maurice Kirkby, *Operational Research in War and Peace*, London: Imperial College Press (2003), 30.

[165] Much of his work was also paralleled by that of the Russian military theorist Osipov, working independently at around the same time, Kirkby, "Operational Research," 34.

[166] Kirkby, "Operational Research," 32.

problems of warfare, and began a process of the official recruitment of scientists, closing the divide between private sector scientists and the armed forces.[167] Fox, in her study of the process by which the British Army went through to learn how to fight in the altered circumstances of the First World War, notes that Isaac Marcosson, a US observer, believed that Britain had become highly scientific in its treatment of the war, and had built on pre-War developments, such as the formation of the Railway Executive Committee in 1912, whose purpose was to plan rail movements during the war.[168]

Wargaming is explicitly concerned with prediction, and although its origins can be traced back far into antiquity, came to prominence in modern Europe through the Prussian *Kriegspiel* in the first half of the nineteenth century.[169] John Curry defines *Kriegspiel* as a system of wargaming with rules and an umpire that continued to gain adherents within the Prussian military throughout the middle of the nineteenth century - without significant interest outside the country until the German victories of 1864-70.[170] *Kriegspiel* continued to be used in Germany throughout the years leading up to, and during, the First World War. Alfred von Schlieffen, architect of the plan for the invasion of France by the German Army in 1914 was a particular advocate of wargaming, as well as of field exercises and staff rides.[171] The British Army adopted wargaming in the 1870s, and the Navy embraced a form of maritime wargaming in 1878, although there was much antipathy towards it, which Curry sees as being a product of the British Army's opposition to professionalism.[172] Nonetheless, they continued to be used and had an effect on the formation of the BEF in the years before the First World War.[173] The significance of wargaming is that it is *explicitly* concerned with forecasting the outcome of future tactics or strategy, and its development parallels other forms of quantification and professionalism that were developing over the same

[167] Kirkby, "Operational Research," 32. Later still, the 1920s that saw the foundation of the Director of Scientific Research at the Admiralty and the Directorate of the Air Ministry in the UK.

[168] Fox, "Learning to Fight," 169.

[169] John Curry, ed., *Peter Perla's The Art of Wargaming: A Guide for Professionals and Hobbyists*, (Amazon: 2011), 41.

[170] Curry, "Wargaming," 43.

[171] Curry, "Wargaming," 51.

[172] Curry, "Wargaming," 61.

[173] Curry, "Wargaming," 63. See also Morgan-Owen, "Fear of Invasion," 121.

period. Tellingly, it gained little traction within the British military establishment, at a time when it's use of quantitative or 'scientific' methods were also in their infancy.

The diverse historiography described above shows powerfully how the period saw the rise of quantification and an increasing recognition of the importance of science in society. The very idea of 'scientific' prediction gained ground during the period, paralleling attempts to introduce mathematical techniques into weather forecasting and economics. It shows that the works of Bloch and Wells, and their novel approaches to forecasting the future, were part of a broader social trend, albeit one that was resisted as much as it was welcomed, with increasing foreboding of what science would bring, evident in much of the gloom with which a European war was envisaged before the turn of the century. In addition, Bloch's predictions were met with much resistance from the British Army, on the grounds he was an 'amateur' concerned with 'ballistics', a synonym for quantification, and therefore unable to grasp war as practised by professionals.

Summary

All of the historiographical strands above are clear that contemporaries understood that they lived in an age of change, and it was affecting war. The concept of the 'cult of the offensive' is interesting, but the evidence points more firmly towards the British Army attempting to find tactical solutions to the problems created by the changing nature of warfare. Some military theorists did approach the mystical in their views of 'moral' force in the offensive, and they are highly quotable, but the historiography shows that the armies of the time – and not just the British - attempted to draw lessons from the South African and Russo-Japanese Wars. The First World War was to show them to be mistaken, at least on a strategic level, but this failure illustrates the challenge they faced with the headlong pace of technological change. It necessitated new methods of investigation, and while the notion of military conservatism can be overstated, the historiography demonstrates that there was little consideration of how radically different a general European war would be when it finally came.

There was, however, certainly no lack of interest in the future, as the historiography demonstrates. There was an outpouring of fiction which, especially from civilian commentators, showed a great deal of imagination as to how future war might be fought. Only isolated writers, however, attempted to create a comprehensive prediction of what war would bring, foremost of who were Wells and Bloch. A vague sense of disquiet over the future was more common, which became most prominent around the turn of the century. The periodicals offer an opportunity to deepen the investigation, enabling the development of a greater understanding of change across the period, and exploring the ways in which the future of war (and more generally the future) was investigated, as will be shown in the succeeding chapters. This is important because the challenge facing military theorists and their civilian counterparts can be underestimated in the light of a subsequent century of change; and this can do a disservice to those who tried, by labelling them as simply irrational, conservative or myopic.

Methodology

The research which forms the backbone of this thesis has come from searches, using relevant terms, through digitised British periodicals published between 1870 and 1914. The bulk of citations in Chapters Two, Three, Four and Seven are from the periodicals, along with a significant number of reviews of the works of fiction explored in Chapter Six. The exception, discussed below, is Chapter Five, which instead focuses on the review of selected military journals. Examining the periodicals in this way has enabled a systematic analysis of changing attitudes to the future, and the future of war in particular, to be undertaken. The primary source for the research has been *British Periodicals Online*, which includes around 500 digitised periodicals dating from between the seventeenth and twentieth centuries.[174] This was supplemented by selected searches, largely focused on specific conflicts, through the *British Newspapers Archive*.[175] Biographical information was, where necessary, drawn from the *Oxford Dictionary of National Biography,* reflecting the political or social significance of some of the writers

[174] British Periodicals Online, https://www.proquest.com/products-services/british_periodicals.html
[175] British Newspapers Archive, https://www.britishnewspaperarchive.co.uk

published in the periodicals and military journals.[176] Definitions of words, which have required occasionally to explore terms such as 'morale' or 'strategy', have been drawn from the *Oxford English Dictionary*.[177]

Articles from 47 different periodicals have been referenced, with a total of 234 specific citations, in contrast to only eighteen from newspapers. Alvin Sullivan's three volume study of British 'literary' periodicals contains an exhaustive assessment of contemporary sources, and if the handful of professional, religious and non-British periodicals cited are excluded, then no less than 40 remain.[178] Removing those titles which are cited only once, twenty periodicals remain, and they have 207 citations between them – 88% of the total from periodicals included in this thesis In fact, only four titles do *not* figure in Sullivan's study and the correlation with the titles in Sullivan's work shows that the digitised collections are *not* a narrow set, but representative of many of the most significant periodicals of the time. The set of core periodicals cited has also not changed during the long period over which this research was conducted (2014-20), demonstrating stability in the material being researched (given that more sources are being digitised all the time). Appendix A, it should be noted, contains a detailed assessment of the periodicals, drawing on Sullivan's work, to provide context for the research.

Turning to specific searches undertaken; Chapter Two is focused on writing on the future in general, and not just on warfare. Searches were made across the whole period of interest, from 1870 to 1914, and included (throughout all searches, including these, capitalised and lower cases terms were searched) "Future AND (World OR Britain)"; "Tomorrow OR Future"; "Future"; and "Future AND Science". They also included more specialised searches, to explore the situation at the turn of the century, such as "New

[176] Oxford Dictionary of National Biography, www.oxfordnb.com.

[177] Oxford English Dictionary, www.oed.com.

[178] Alvin Sullivan, *British Literary Magazines: The Romantic Age*, 1789-1836 (London: Greenwood Press, 1984). Alvin Sullivan, *British Literary Magazines: The Victorian and Edwardian Age*, 1837-1913 (London: Greenwood Press, 1984). Alvin Sullivan, *British Literary Magazines: The Modern Age*, 1914-1984 (London: Greenwood Press, 1984).

Century AND Forecast"; and "New Century AND Prophecy". As with all the searches mentioned here, this list is not exhaustive.

Chapter Three is focused on writing on the future of war from 1870 to 1899, up to the start of the South African War. Searches included 'Future' AND 'War' AND/OR 'Army'/'Armies'; 'War' AND 'Lessons'; 'Future War'; and other combinations of these and 'Plevna' or 'The War of 1870'. Chapter Four is focused on writing on the future of war from the outbreak of war in South Africa in 1899 to 1914. Searches through the database included 'Future' AND 'War' AND/OR 'Army'/'Armies'; 'War' AND 'Lessons'; 'Future War'; and other combinations of these and 'Russo-Japanese' or 'South African' [Wars].

Chapter Five is focused on writing from the military journals, for which a different approach was adopted; the sources for this chapter were largely constrained to two of the most significant British military journals of the period. Concentrating on these journals across the period of interest made it possible to construct a consistent view of military thinking, paralleling the assessment of civilian journals across the same time frame. Foremost of the two was the *Journal of the Royal United Services Institution*, the organ of Britain's most significant military and naval society. Every edition of the *Journal* published between 1870 and 1914 has been inspected, to identify articles dealing with the future of war, without the use of keyword searches. Over 110 articles were found using this method, with the majority coming later in the period. This is partly because, from 1870 to 1890, the *Journal* was published quarterly, before moving to monthly publication until the outbreak of War in August 1914, after which it was produced more sporadically. This research has been supplemented with a similarly intensive search through the *Cavalry Journal*, which was first published in 1906 before temporarily ceasing publication in 1914. The *Cavalry Journal* is not digitised, so the research was conducted at the current RUSI Library, which holds an extensive collection of military journals and papers from the nineteenth and twentieth centuries. The systematic evaluation of the *RUSI Journal* and *The Cavalry Journal* has been counterpointed by sampling a number of editions from the *Journal of the United Service Institute of India*, to add depth to the research. Established in 1872, it was published

quarterly throughout the period and three sample editions were assessed for this research, from 1900, 1906 and 1912.[179] Works by the prominent German military writers Goltz and Bernhardi, much discussed in the journals, have also been examined.

Chapter Six focuses on works of fiction about future war, and their responses from the periodicals. The selected works of fiction analysed in this chapter have been drawn from the lengthy treatises on the portrayal of future war written by Clarke and Echevarria, supplemented by searches through the digitised periodicals on the titles of the works or their authors, to find contemporary reviews.

Chapter Seven is focused on the works of Bloch and Wells, and reactions to them, so used a number of articles identified in the research underpinning previous chapters, augmented by new searches such as 'Bloch' AND 'War'; and 'Wells' AND 'War'. The chapter also included the analysis of works by Colonel Maude, a notable critic of Bloch, and the peace campaigner Norman Angell, Goltz and Schlieffen.

Two figures are presented below which summarise the total number of citations in this thesis, broken down by year. Care must be taken with interpreting the figures, as the method of selecting articles was only partially objective, relying as it did on interpretation to determine what was relevant. In addition, entries from *The Cavalry Journal* only begin in 1909, creating more citations in the last few years of the period of study. Figure 1 shows the total number of citations (407) from newspapers (18), periodicals (234) and military journals (155). It shows clear peaks in 1870-71 (during the Franco-German War) and 1877-78 (during the Russo-Turkish War), and then growing references to the future – and the future of war – in the 1890s. There is then a huge spike in citations during the South African War, between 1899 and 1902, before the figure settles down to a reasonably high level of interest in the years from 1903 to 1914 (there is a single entry for 1915, associated with an article looking back to one of

[179] The year 1900 was selected as it was the first full year of the South African War, and the others sampled at intervals of six years to capture changes through the early part of the twentieth century.

the works of fiction, Arthur Conan Doyle's *Danger!*) with less of a marked peak associated with the Russo-Japanese War in 1904-05.

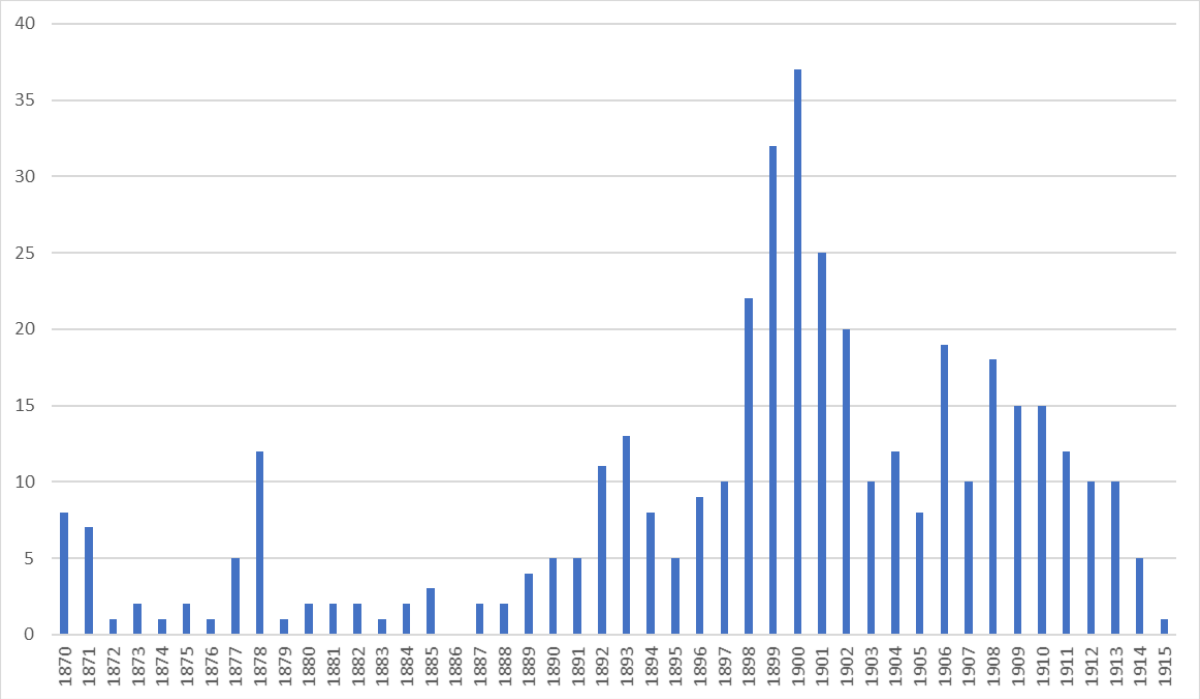

Figure 1 Total Number of Articles (1870 to 1915)

Figure 2, below, is the same, but excludes articles from the military journals. It also differentiates between those articles concerned with the future of war (in blue) and the future in general (orange). This figure shows the same pattern as Figure 1, with peaks in interest in the future of war in 1870-71, 1877-78 and especially 1899-1902. It also highlights the large number of articles from 1898, representing interest in the Battle of Omdurman and the campaign in the Soudan. The figure shows clearly the rising interest in the future of war in the 1890s, and also a peak of interest in 1905-06, overlapping with the end of the intense interest in the South African War.

The pattern of 'non-war' articles is also interesting. There are a handful of articles in 1871 and then no others before 1889, followed by a steady number in the 1890s, increasing towards the turn of the century, undoubtedly reflecting a focus on the future as the turn of the century approached and then passed. The number of articles on the

future then continues through to 1914, not rising, but showing consistent interest in the subject.

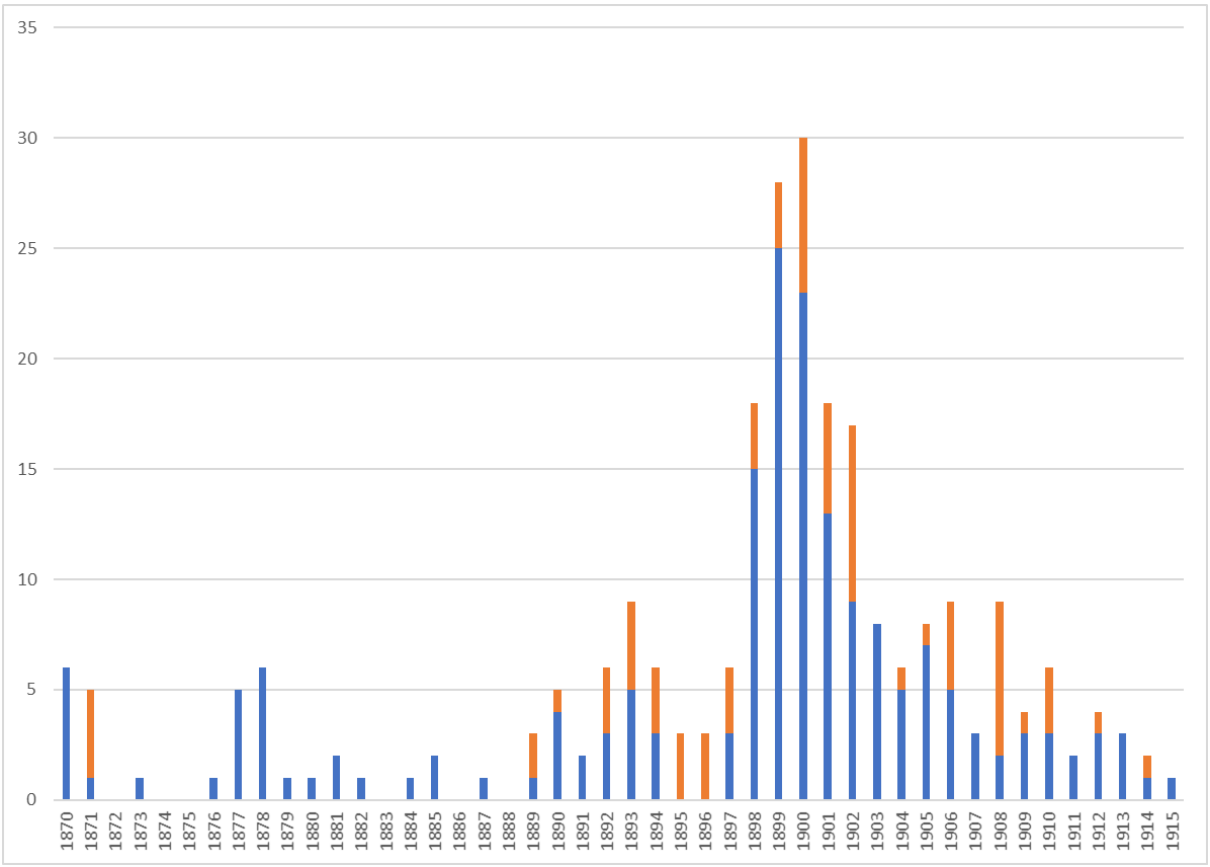

Figure 2 Number of Articles from non-Military Sources (1870 to 1915)

Chapter Two Facing Progress

This thesis is concerned at how war in the future was envisaged by civilian and military writers between 1870 and 1914. This must be contextualised, however, with how the future in general was discussed over the period of interest, and this chapter investigates how the periodicals imagined and debated the future, in advance of Chapters Three to Five, which explicitly look at how the future of war was envisaged. Its conclusion is that the period saw a rise in 'scientific' prediction, interest in both technological and societal change, and increasing concerns over where 'progress' might lead. As set out in Chapter One, the methodology used was to search through digitised periodicals using a variety of keywords, to identify articles engaged with the future. Twenty different periodicals were identified in this way, demonstrating that there was considerable interest in the future during the period. Nonetheless, the number of articles identified varies considerably by decade, with few articles cited before 1889, rising interest in the 1890s, a peak in 1900-02, due to interest in what the new century would bring, and somewhat fewer articles thereafter. As will be seen in Chapters Three and Four, there was also a peak of interest in the future of war in the periodicals in the 1890s and early 1900s, although the latter period was largely a product of the South African War (1899-1902). The 1890s can therefore be identified as the decade where there was a recognition of accelerating change, in both the civil and military spheres.

It would be wrong, however, to assert that the 1890s, or indeed the 1870s, marked the first time that social and technological change were affecting Britain; far from it, as people had been living through - and reacting to - tumultuous change since the Industrial Revolution.[1] Nonetheless, the pace of change was quickening and the years between 1880 and 1914 saw staggering demographic and social change, as indicated by the population of Britain and Ireland rising by ten million between 1881 and 1911, to over 45 million.[2] Technological change is indicated by the fact that in 1914 there were 132,000 motor vehicles on the roads, less than twenty years since the first vehicle had

[1] Simon Heffer, *The Age of Decadence: Britain 1880 to 1914* (London: Random House, 2017), 244.
[2] Heffer, "Age of Decadence," 31

been imported into the country.[3] As Heffer says, this *belle epoque* can be seen as an age of refinement, but it was in fact one of upheaval, radical change and challenge to the social order.[4] Rapid change made society uneasy about itself across Europe, creating a troubled atmosphere in a continent at the apex of global power.[5] By the mid-1890s the pace of change was perplexing and unsettling, leading to a mood of retrenchment in the established ruling classes, alongside nostalgia for a more settled past.[6]

Domestic change was matched with shifts in the relative industrial and military strength of the great powers, bringing instability to international relations.[7] Britain, which had been the leading power since 1815, was in relative industrial decline, particularly when compared to Germany and the United States, and intensely concerned with what the future might bring, even though it retained leadership in global finance and possessed the largest navy in the world .[8] The 1880s also saw the development of Social Darwinism, which transposed Darwin's theory of evolution through natural selection to competition between states or, in the vernacular of the time, 'races'. Social Darwinism was at work around the turn of the century, seeing competition between nations as a matter of survival of the fittest, with powers classed as 'rising' or 'falling'.[9] In parallel, Galton had developed the concept of eugenics in 1883, to battle the perceived decline of the 'race' through selective genetic manipulation, including the sterilisation of the weak.[10] In this pessimistic and febrile intellectual climate, there was also a fear of emasculation, with Britain and Germany fearing for the fitness of their men, along with concern in the rise of women.[11] One response to these perceived crises was to turn to

[3] Heffer, "Age of Decadence," 34.

[4] Heffer, "Age of Decadence," 32.

[5] Margaret Macmillan, *The War That Ended Peace: How Europe Abandoned Peace for the First World War* (London: Profile Books, 2014), "War That Ended Peace," 231.

[6] Heffer, "Age of Decadence," 442.

[7] Paul Kennedy, *The Rise and Fall of the Great Powers* (London, Unwin Hyman, 1988), 198.

[8] Heffer, "Age of Decadence," 442.

[9] Kennedy, "Great Powers," 195.

[10] Heffer, "Age of Decadence," 427.

[11] Macmillan, "War That Ended Peace," 32.

militarism and a view that war could cure the perceived ills of society.[12] War could therefore be seen positively, as discussed at length in Chapter One.

Science had advanced hugely throughout the nineteenth century, bringing with it greater rationality, leading to increased faith in its ability to better the world, and a sense of positivism through the mid-Victorian era.[13] By the turn of the century, however, this conviction had begun to falter, adding to pessimism about the future, which was particularly noticeable in Britain after the South African War, which had fed into concerns over the fitness of recruits for the Army, and therefore the British 'race'.[14] Around the turn of the century new theories were overturning the foundations of physics, with Einstein's theory of relativity, and quantum theory, undermining the notion of a predictable and comprehensible universe. [15] Coupled with the beginnings of psychoanalysis, science itself seemed less certain, feeding into a more widespread movement towards unreason, and increased interest in emotion, mystical truth and instinct.[16]

Nonetheless, while there was a reaction against the ability of science to cure the ills of the nation and the world, society itself was steadily becoming more 'scientific' in nature, as discussed at greater length in Chapter One. Britain was already a predominantly industrial nation by 1914, with four-fifths of the population being urban. As the need for technical expertise grew, there was an increase in the number of engineers, administrators and teachers, as well as lawyers, doctors and those working in commerce.[17] The shift was dramatic, such that white collar jobs in Britain increased from 144,035 in 1851to 918,186 in 1911.[18] Contemporaries saw their world as becoming more 'scientific', even as there was a reaction against it, with a recognition of

[12] Macmillan, "War That Ended Peace," 260.
[13] Macmillan, "War That Ended Peace," 14.
[14] Heffer, "Age of Decadence," 431.
[15] Philipp Blom, *The Vertigo Years* (Philadelphia: Basic Books, 2008), 54.
[16] Blom, "Vertigo Years," 403.
[17] Heffer, "Age of Decadence," 118.
[18] Heffer, "Age of Decadence," 118.

the growing importance of experts, scientists, engineers and statisticians.[19] The dichotomy between the growth of scientific expertise and a reaction against it runs through the way in which future war was seen.

Unlike articles on the future of war, those which address it more widely often look further than a few years into the future. Most of those interested in war, as shown in Chapters Three and Four, tended to see the future as something fairly imminent, while those on civil technologies, society and politics often looking decades in the future. War was seen as an immediate problem to be faced, while other subjects allowed their authors the scope to be more discursive. One of the themes of this chapter is the growing appreciation of the ability – or inability - of forecasters to predict the future, which developed as the period advanced. Just as the number of articles taking an interest in the future increased from the 1890s onwards, so did the number of writers engaging with the philosophical question of whether it was possible to accurately forecast the future. Questions were raised on the ability of scientists and others to predict future technologies or social changes, demonstrating increasing intellectual engagement with the subject.

The chapter begins with an examination of religious prophecy, which had historically been seen as the only way of foreseeing the future, and which continued throughout the period. Nonetheless, the importance of scientific prediction was becoming more recognised, as the increasing number of articles from the 1890s onwards on the subject demonstrates. The chapter first looks at those articles interested purely in technological progress, before moving onto those which looked at how it – along with demographic change – could affect society more widely. It should be noted that when war is mentioned in articles concerned with the more general future, it is discussed in this chapter, including discussions on both technological and societal change. It concludes with the interest shown specifically in the future of Britain, at a time when there were considerable anxieties about its place in the world, which were greatly heightened because of the South African War. Before moving onto the main content of the chapter,

[19] Blom, "Vertigo Years," 403.

however it is necessary to highlight the work of H. G. Wells on predicting the future, and his series of nine articles, with the overall title *Anticipations: An Experiment in Prophecy.* These were published in 1901 in *The Fortnightly Review,* and later brought together in book form.[20] Wells' comprehensive work on a future fifty to a hundred years ahead was discussed in the periodicals, but *Anticipations* is discussed in Chapter Seven, as Wells' work stands out as being of a different magnitude to most writers of the time, through its scale, range and approach. This final chapter focuses on his work, and that of Jean de Bloch, and counterpoints them with the approaches taken by the bulk of civilian and military writers. What this chapter will show, however, is that there were plenty of other commentators interested in what the future would bring, and that they saw 'scientific' prediction as essential for interrogating the future.

Religious Prophecy

Prophecy, historically, meant the religious or mystical revelation of the future. Therefore, while interest in scientific forecasting increased throughout the period, there was no shortage of religious prophecy being published in parallel, albeit often in more specialist Christian publications, such as *The Quiver*, a periodical for a middle-class audience with the stated aim of acting as "a defence of biblical truth and the advancement of religion in the homes of people."[21] An article from *The Quiver* in 1897 explicitly saw the decline of the Ottoman Empire as being foreseen by Biblical scripture, such that "the prophet David predicted the rise and fall of the Moslem power." [22] Its author, W. Preston, referred to the Ottoman Empire as the 'sick man' of Europe, the

[20] Starting with H. G. Wells, "Anticipations: an Experiment in Prophecy – I – Locomotion in the Twentieth Century," *The Fortnightly Review*, April 1901, 747-760. The most relevant article to the discussion in this chapter is H. G. Wells, "Anticipations: an Experiment in Prophecy – VI – War," *The Fortnightly Review*, September 1901, 538-554. The ninth and final article was H. G. Wells, "Anticipations: an Experiment in Prophecy – IX – The Faith, Morals, and Public Policy of the New Republic," *The Fortnightly Review*, December 1901, 1063-1082.

[21] *The Quiver* was published from 1861 to 1926, having been founded by John Cassell, an evangelist and member of the temperance movement, although the periodical was moderate and initially supported scientific enquiry. See Alvin Sullivan, *British Literary Magazines: The Victorian and Edwardian Age, 1837-1913* (London: Greenwood Press, 1984), 331.

[22] W. Preston, "A Wonderful Prophecy Wonderfully Fulfilled; or Turkey and Palestine in the Light of Prophecy and Present Events," *The Quiver*, January 1897, 1-6.

geopolitical implication of which was a subject of serious interest in Britain, but his focus is on how this event had been foretold in the Bible. The article concluded with a view that the restoration of Jerusalem to the Jews would presage the Second Coming, and that contemporary Jewish interest in a homeland was a clear sign of what was to come.[23]

Another article with a direct interest in religious prophecy was published in *The Wesleyan-Methodist Magazine* two years later, in 1899.[24] This saw "prophecy [as] a living force – there are still young men who see visions and old men who dream dreams!"[25] The thrust of the article was to first, rhetorically, question the efficacy of prophecy. W. Burkitt Dalby, its author, saw it as a valid and relevant 'living force', and questioned the materialism of the age. His article is suffused with a sense of contemporary concern over the future, and he was pessimistic about what progress would bring. Dalby did not, however, see science as necessarily the enemy, stating that "the great influences which come from science are now being recognised as not necessarily materialistic."[26] The article saw prophecy as something with divine origin, and Dalby considered that the discoveries of science illuminated divinity at work.[27]

Another article, this time in *The Speaker*, and also written in 1899, was not directly prophetic in its outlook, but alluded strongly to a religious view of the future. The author was a correspondent in Constantinople (the city which figured so prominently in the article in *The Quiver*) and focused on the danger and likelihood of a "world-war." The author referenced what was – to judge by the articles above – a contemporary view that:

[23] Preston, "Wonderful Prophecy," 6.

[24] The Wesleyan-Methodist magazine ran from 1778 to 1969. See Laura Brake, ed., *Dictionary of Nineteenth Century Journalism* (London: Academia Press & British Library, 2009), 670.

[25] W. Burkitt Dalby, "Prophecy A Living Force," *The Wesleyan-Methodist Magazine*, November 1899, 806.

[26] Dalby, "Prophecy," 808.

[27] Dalby, "Prophecy," 808.

> those who believe that the last days are to be ushered in by a period of universal war have much reason to think that the last days have come, that the universal war is not far off, and that it will bring such calamities as the world has never seen.[28]

This parallels, albeit with added mysticism, the fear of war evident in the 1890s and reported at length in Chapter Three. The author referenced religious views on a number of occasions, including the conviction that a period of disaster could lead to the Second Coming of Christ. The author referred specifically to the danger posed by a general European War, , such that "Europe will have conquered the world only to destroy herself and spread ruin and desolation over all the earth."[29] As with many articles of the time, it also alludes to a "world-state" managed by an Anglo-American alliance.

The terminology of the period is interesting; prophecy has a meaning associated with religious or mystical foretelling, while terms such as 'forecast' stand for a more scientific interpretation of the future. In practice the two terms were used interchangeably, as can be seen in the mixture of terms used in an article entitled 'Two Dips into the Future' in *The Review of Reviews* in 1899, such that "the forecast of finalities, imperial and international, with which Hebrew prophets and apocalyptic seers made us familiar, are very much in fashion at present."[30] This author saw parallels between religious and scientific approaches to interpreting the future, and the term 'forecast' is used in both senses in his article. This identifies the period as one of transition and identifies scientific prediction as a relatively new phenomena. The same article also referenced another prominent debate on the future used in religious interpretations: a possible Jewish homeland in Palestine.[31] As noted above, the articles by Preston and Dalby both saw the foundation of a Jewish homeland as one of the preconditions for the calamities which would presage the apocalypse, which was seen as something likely to happen in

[28] "The World-State and the World-War," *The Speaker*, January 14, 1899, 49.

[29] "The World-State," 49.

[30] "Two Dips into the Future," *Review of Reviews*, September 1899, 295.

[31] "Two Dips," 295.

the near future.[32] This shows the interest in the subject of a Jewish homeland around the turn of the century, and its relationship to religious prophecy.

An article in *The New Century Review*, again written in 1899 (reflecting general interest in forecasting the future at the turn of the century), was dedicated to 'France and her Future', and contains an emphatic statement that the age of religious prophecy was at an end: "the age of prophecy has passed away, and the race of prophets is extinct - unless we accept the cultivated seers attached to Mr Alfred Harmsworth's omniscient journal."[33] This was a satirical reference to Lord Northcliffe, Alfred Harmsworth, proprietor of *The Daily Mail* and, later, *The Daily Mirror*. The actual article itself is more parochially concerned with the future of France in the light of the Dreyfus affair and its likely impact on the French Army. Notwithstanding the notion of their extinction, religious prophecy was to continue into the twentieth century, but so would scientific forecasting, which would grow in significance as the new century passed.

Technological Progress

Some of the 'scientific' predictions of the future were focused purely on technological change, rather than considering their social impact. These are of interest, however, as they demonstrate a growing understanding of how quickly technology was changing. An early example is an article entitled 'The Future and What It Hides In It', based on predictions originally made in *The North American Review* by the American scientist Professor Thurston, reported in *The Review of Reviews* in 1890.[34] He predicted faster travel by train and ship in the future and was confident that flight would become "as common as tramcars in the twentieth century."[35] He forecast that electricity would have a significant impact in the future, and specifically predicted hydroelectric power and the

[32] "The Future of the Jew," *The Outlook*, December 29, 1900, took a different view, considering that Jews 'in England' (many contemporary sources used 'England' as shorthand for 'Britain') were being absorbed into the broader culture and that English tolerance would prove too great a temptation for them, such that . Zionism would remain an unfulfilled dream.

[33] Liberticus, "France and Her Future," *The New Century Review*, October 1899, 282.

[34] "The Future and What It Hides In It," *The Review of Reviews*, February 1890, 115.

[35] "The Future and What It Hides," 115.

use of wires to transit electricity, as well as foreshadowing – in broad terms – what would become radio (research was underway later in the 1890s) and television (early work began even before the First World War). Another of Thurston's predictions was that ever more powerful armaments, such as the submarine, would lead to universal peace, which once more resonates with articles emphasising the fear of war in the 1890s. The predictions are, with hindsight, prescient, although - at least in the report in *The Review of Reviews* - they are not closely linked to specific time periods in the future. Although Thurston was not reported as showing much interest in the social impact of his technological predictions, he did suggest that the distribution of electricity and mechanical devices to each home would give rise to working at home, rather than in the factory system.[36]

Three years later and further predictions from Professor Thurston were being reported in *The Review of Reviews*.[37] They are similar in scope to the earlier report, although there are more specific predictions, such as that powered flight would be achieved in ten years' time and that steam locomotion would give way to "direct conversion of the energy of chemical forces into mechanical power without enormous thermodynamic losses."[38] Thurston seems to be forecasting the rise of the internal combustion engine, although the reference may be more general. The summary in *The Review of Reviews* also reported discussions between Thurston and Professor Graham Bell in *McClues Magazine*, covering topics such as a form of information transmission which is recognisably like television.

The Review of Reviews excitedly reported another set of predictions of the future in 1897, this time from Edison, as reported to G. P. Lathrop. The "prophecies" – again noting the use of the term for a scientific forecast - of Edison are framed through the eyes of someone who has slept for three hundred years and then awoken, with the sleep engendered by scientific use of 'chlorophony' and antiseptics, rather than any mystical

[36] "The Future," 115.

[37] "On the Edge of the Future," *The Review of Reviews*, July 1893, 40.

[38] "On the Edge," 40.

means, another sign of shifting emphasis towards technology as providing agency.[39] The specific predictions in the article included airships (albeit powered in what would soon be seen as an unrealistic fashion), and the widespread use of electrical motors, also foreseen by Thurston.[40] The article also described a number of societal changes, including a statement that alcohol and meat eating had been abandoned in the future, along with cities. In a rare prediction of more radical social change, the author also stated that "one of our most brilliant scientific men is an African named Mwanga, for Africa is now largely civilised and enlightened."[41]

In 1900, *Chamber's Journal* published an article reporting on the predictions of Nikolas Tesla, originally recorded in *The Century Magazine* under the title 'The Problem of Increasing Human Energy'. Tesla considered that the coming of aircraft (once more, this is seen inevitable) would lead to control of the air being as important as control of the seas.[42] He predicted the rise of automation and in one remarkable phrase stated that in the future "mere machines will meet in a contest without bloodshed, the nation's being simply interested, ambitious spectators."[43] Tesla is predicting warfare between machines, and many of his other forecasts are remarkably farsighted, such as predictions of wind power, solar power and even geothermal energy – the extraction of energy from the Earth's interior.[44] He also discussed the possibility of meat being artificially grown, rather than being the product of farm animals.[45]

Moving forward to 1904, and *The Strand* reported on a symposium of some of the most eminent scientists of the time, including Lord Kelvin, into the "factors, food and forces of the future".[46] The article had a clear agenda and stated that "nobody who reads the

[39] "The Prophecies of Edison; or, Visions of Things to Come," *The Review of Reviews*, March 1897, 246.

[40] "Prophecies of Edison," 247.

[41] "Prophecies of Edison," 247.

[42] "Some Forecasts of Science," *Chambers's Journal*, August 18, 1900, 593.

[43] "Some Forecasts," 593.

[44] "Some Forecasts," 594.

[45] "Some Forecasts," 594.

[46] "The Promise of Science: a Symposium of Eminent Scientists on the Factors, Food and Forces of the Future," *Strand Magazine*, December 1904, 668.

newspapers nowadays can fail to be struck by the new role which science is playing in the great drama of the world."[47] The predictions of the scientists included, like Tesla, geothermal energy and solar power, although they added wave power to the list. The scientists also discussed the possibility – again like Tesla - of growing meat rather than using farmed animals. The article was, however, couched with doubts and measured practical considerations, underlying the fact that the scientists were well aware of the risks of predicting the future. War was even covered briefly, with a statement from Professor Berthelot that "new generations simply will not tolerate it at any rate."[48] Once again, the point that new weapons could make war unpalatable, to the point of its abolition, is being made.

A final and much more limited article in this category of technological forecasting comes from *The Athenaeum* in 1912, which discussed oil as a 'future fuel' in the context of three books on the subject.[49] The article is a review of contemporary work and only obliquely concerned with the future *per se*, but evaluated the increasing importance of petroleum and the potential difficulties of maintaining and increasing its production. It was pessimistic in terms of achieving this goal, which was to be proven wrong in the decades to come, but the article is interesting – as are the books it is reviewing – in being based on the numerical evaluation of resources and their evolution.

These six articles, dating between 1890 and 1912, demonstrate interest in the future and the way science and technology would influence the twentieth century. They show a keen appreciation of current scientific developments, drawing upon articles or books by scientists or panels of scientists. As a consequence, they show considerable foresight in predicting the coming of flight and the increasing significance of electricity. Other predictions, such as the use of solar power, were not to be achieved for many decades to come, as the underlying technology was far too immature to be effective for many decades. What is more significant, however, than the actual predictions, is the framework in which they are made. Firstly, they demonstrate the curiosity in the period

[47] "Promise of Science," 668.

[48] "Promise of Science," 672.

[49] "Science: Fuel," *The Athenaeum*, March 9, 1912, 286.

towards the future and what science could offer. Secondly, they appear from 1890 onwards, showing a greater appreciation of what the future could bring. Thirdly, they are largely technical exercises with only limited extrapolation into the social changes which might occur due to the impact of science. Finally, they are usually optimistic or neutral in their opinions of new technologies, and signal that the perceived pessimism of the age should not be overstated. As Bowler says, there remained a great interest in the practical scientific and technical advances of the age, which can be overlooked.[50]

Social and Political Forecasts

Other articles went further than simply discussing likely technological advances and showed an interest in social change, as well as discussing the feasibility of forecasting the future. *Chambers's Journal* published a piece on the future in 1895 which looked back to an earlier attempt to do so, written in 1852, and considered that its predictions had been remarkably astute.[51] This reinforces the point that the 1880s and 1890s were not the first decades to notice the impact of change, although its rate was accelerating. The article sets out the huge differences between the present time and the beginning of the nineteenth century, before moving on to more philosophical matters:[52]

> To some it appears that we have, in various science directions, already nearly reached that boundary beyond which the human intellect cannot pass; while others see in the success which has followed past endeavour, the promise and potency of still greater triumphs. Besides, how many discoveries Nature reveals to us unexpectedly and unsought for! while each one in succession assists in explaining mysteries yet unsolved.[53]

[50] Peter Bowler, *A History of the Future: Prophets of Progress from H.G. Wells to Isaac Asimov* (Cambridge: Cambridge University Press, 2017), 17.

[51] "In the Future," *Chambers's Journal of Popular Literature, Science and Arts*, April 6, 1895, 209.

[52] "In the Future," 209.

[53] "In the Future," 209.

This statement affirms the likelihood of future scientific advances, at least in many areas, but is followed by a more prosaic catalogue of predominantly scientific forecasts and conjectures, including the potential – again – of growing food from sources of 'protoplasm'. The articles considered this important, as it could provide a way of reducing Britain's reliance upon food imports, which was a subject of concern whenever a future European war was discussed. The article also discussed the rising significance of electricity and hoped that new forms of energy generation such as hydroelectrical power could fill the gap left with the hypothetical exhaustion of coal. The article concludes on a positive note that "science is only at the beginning of its career. The prospects of the future invite to present humility."[54] Once again, here is another statement providing more positive engagement with what technology might offer.

A longer article by Quail, written in 1902, had a specific interest on the feasibility of foreseeing the future, and explicitly referenced Wells' *Anticipations*. Quail wrote that there has been something of a change in the way the future is being treated in that "not only the Utopian romancers…but even more sober and practical minds are, at the opening of fresh eras, tempted to make experiments in prophecy." [55] Here, he is not differentiating between religious and scientific forecasting, but between Utopian accounts and those which he considered to be logically presented, such as by Wells. Quail was, however, unconvinced by *Anticipations,* and thought that Wells' predictions had "no better prospect of realisation than the mechanical social arrangements devised by the late Mr Edward Bellamy for the New Boston of the year 2000."[56] Quail went on to make predictions entirely in line with other writers of the time; such as the replacement of steam by electricity as the chief motive force of the future, or that 'air cars' would become common before the end of the twentieth century. These suggestions were – to be fair to the author - treated as being commonly appreciated.

[54] "In the Future," 211.

[55] Quail, "Forecasts of the Future," *Jesse Macmillan's Magazine*, January 1902, 219.

[56] Quail, "Forecasts," 219. He is referring to Bellamy's Utopian work *Looking Backwards*, first published in 1888.

Quail then focused on the future of Britain, and discussed the erosion of the country's position as manufacturing centre of the world.[57] He drew on the work William Clarke, discussed below in more detail, and considered that while the future might lie with New York rather than London, manufacturing overseas could lead to British artisans traveling to generate revenue – what has now become known as globalisation.[58] Quail does not provide timescales for these events to happen, but he does use Dolman's data to drive these extrapolations, such that:

> Analysing the census figures of the occupations of the people in 1891, [Dolman] shows that the proportion of the population which lives by making goods for exportation is only ten to twenty percent, and as this percentage was then decreasing, it is probably much less now.[59]

This form of analysis can only be achieved through the availability of census data and an understanding of mathematical extrapolation. What is evident here is the way in which statistics are enabling, and influencing, more quantitative forms of forecasting. Quail's article, seen as a whole, is an example of the systematic evaluation of present trends and their future impact on society. Although he undoubtedly saw himself as forecasting logically, he concluded with a cautionary note that "though some of the predictions of our social and political seers may be fulfilled, or partially fulfilled, very few will be carried out wholly, nor is any one of them likely to be realised to the letter."[60] Here is recognition that forecasting the future is a hazardous business.

Another article from 1902 also emphasised the difficulties of predicting the future, this time in direct reference to Wells' lecture on 'The Discovery of the Future', at the Royal Institute, given a year after the publication of *Anticipations* and discussed at length in Chapter Seven. The article spoke positively of Wells' work but was sceptical of the possibility of predicting the future, which Wells believed feasible, because:

[57] Quail, "Forecasts," 222.
[58] Quail, "Forecasts," 223.
[59] Quail, "Forecasts," 222.
[60] Quail, "Forecasts," 225.

> We are not to consider society, as said Mr. Wells in his lecture, as static but kinetic. True, and that is the very reason why it is impossible to prophesy even in the new fashion on the basis of scientific fact; because the facts are changing while we look at them; and so our prophecy will be constantly changing.[61]

The anonymous author is suggesting that the sheer complexity of the predicting the future would confound the forecaster, foreshadowing the difficulty of prediction in the face of unknown technologies and their interaction with social trends. This is exemplified by his statement about a specific prediction that:

> not so many years ago the industrial and therefore the whole social and political future of England seemed to turn on the geological question of how long the coal fields would last, and the prophecies were doleful. Now [they] are cheerful because our new basis of fact is the discovery of electric power.[62]

It should be noted that the article in *Chamber's Journal* from 1895, only seven years earlier, thought that the coal fields would be exhausted, emphasising the point that predictions could change quite strongly. For all these doubts, however, the author is at pains to state that prophecy now lay in the domain of science, and that a failure to predict the future was based on human error and not divine will. His concern is the practicality of effective prediction, even though he expressed admiration for Wells' thinking. What this illustrates is the emergence of debate about the ability (or inability) to predict the future, showing writers beginning to grapple with the problem of predicting the future during a period of accelerating change.

There is another example of debate on 'scientific' forecasting in an article in *The Idler* in 1896, entitled 'Cities of the Future'. This begins with an explicit reference to the analogy between weather forecasting and the prediction of the future, with the author, F. L. Oswald, stating that:

---

[61] "Foreseeing the Future," *The Saturday Review*, February 1, 1902, 136.

[62] "Foreseeing," 135.

> The main secret of weather prophecies is the plan to ascertain the drifts of clouds and winds, and then calculate the probable result of their movement in a given time. It has often occurred to me that the same method may be applied to all other sorts of prediction. It would indeed, not be difficult to trace the progress of scientific discoveries in certain directions.[63]

Oswald explicitly sets out the notion of a mathematical or scientific evaluation of the future, which he seems to consider novel. He is (to borrow a phrase) anticipating the ability to forecast the future, just as Wells' did six years later in his lecture to the Royal Institution. Oswald's specific predictions cover more than just cities; like almost everyone else quoted in this chapter he stated that it is "more probable that the construction of navigable airships will be accomplished before the end of the next twenty years."[64] Oswald also mentioned the growth of the world's armaments and considered, as common at the time, that this was likely to make war unpopular and unlikely.[65] Some of his other forecasts were more specific and unusual: he predicted the coming of air conditioning and that hotels a hundred years in the future which did not have it would struggle.[66] He also discussed the possibility of free newspapers being possible through the power of advertising. These predictions were, of course, to come to pass in the twentieth century, albeit many decades later. Oswald and his contemporaries were certainly not afraid to predict the future decades in the future, albeit often without risking guesses as to *when* new innovations would be introduced.

Another example of an attack on the predictability of the future is to be found in a review of Karl Pearson's 1893 work, *National Life and Character*, which was to become famous at the time for raising fears of the rise of the 'Yellow' race to challenge the 'White' race. I. F. Clarke, in his study of writers attempting to predict the future, considers Pearson as one of those who believed that a science of forecasting could be developed. A hostile reviewer in *The Edinburgh Review* was, however, critical of

[63] F. L. Oswald, "Cities of the Future," *The Idler*, April 1896, 421.

[64] Oswald, "Cities," 423.

[65] Oswald, "Cities," 424.

[66] Oswald, "Cities," 422.

Pearson's conviction in this area, noting that "the means of forecasting the future of the human race seem to us so imperfect, that the most thoughtful and best informed prophet is only a little better finished for the task than the ephemera of our fables."[67] The reviewer was also critical of Pearson's view that science had discovered all that it can, emphasising that the rapid progress in sciences such as astronomy and geology demonstrated the opposite. [68] Another article which borrowed from Pearson and moved along a similar Social Darwinist trajectory stands out against the more positive tone of articles on the predictions of Thurston, Edison or Oswald. Here, in 'A Senile World', was pessimism, and the author focused on Pearson's prediction of an aging population and concluded that it would eventually lead to a collapse of civilisation. [69] The article contextualised the 'Yellow Peril' through fear that Chinese labourers would work for lower wages than Europeans or North Americans, and the author ended with a pessimistic retrospective that "twenty years or so ago most of us were filled with hope and confidence in the future of mankind."[70] This statement very much parallels the negativity of those who wrote about war at the time, and is part of the doubt exhibited by European culture at the turn of the century.

Pearson's book and the articles which review it are examples of writing interested in the way demographics and social change would shape the future. A further one from 1910, entitled 'The City of the Future', was focused on an examination of the future city, including a statement that more cosmopolitan city centres such as London, Paris and New York were becoming more interchangeable, which the author saw as a trend for the future.[71] It compared Britain's *laissez faire* attitude to planning to Germany's more rigorous approach, and favoured the latter, stating that "the futility of disorganised industrial effort has at last been realised."[72] More broadly, the author predicted that

[67] "National Life and Character," *The Edinburgh Review*, October 1893, 278.

[68] "National Life," 298.

[69] "A Senile World," *The Speaker*, January 23, 1893, 98.

[70] "Senile World," 98.

[71] "The City of the Future – the Immediate Future in England," *Journal of the Society of Architects*, December 1910, 74.

[72] "The City," 72.

cultural change was inevitable in the future, and a move towards a future rooted more firmly in scientific principle.

The Future of Britain

This anonymous author's concern over the apparent superiority of Germany in town planning is part of a considerable outpouring of material on the position of Britain at the turn of the century, demonstrating increasing anxiety over the rise of the United States, Germany, and even Russia. It was a topic of vigorous debate in the press which attempted to forecast the future and to provide warnings and suggest ways in which Britain could be reinvigorated or renewed. The *Review of Reviews* was at the forefront of this debate, with Stead, its longstanding editor, producing a series of supplements to his periodical on the subject from 1896 until at least 1906. The series began with the title 'Wake Up! John Bull'.[73] The title sometimes shifted to 'How to Wake Up John Bull', then to 'Cheer Up John Bull', and finally to 'Go Ahead! John Bull' when Stead felt that his campaign had gained some traction.[74]

Typical of the articles in these supplements is a report on an article by Andrew Carnegie, the American industrialist, who Stead noted emphasised the economic superiority of the United States over the United Kingdom in 1902, as well as predicting – correctly with hindsight – that within ten years Germany would also surpass Britain.[75] Carnegie stated that the only solution lay in the need for Britain developing a workforce as efficient as that in Europe, but also that the United States could only be compared to Europe as a whole, which could only respond effectively by forming "some form of political and industrial union."[76] The *Review of Reviews* clearly saw the merit in Carnegie's ideas and his view that if Britain faced a federated Europe bound by "Free Trade", then it should seek a union with the United States; which was a discussion shaped in racial terms

[73] See, for example, "Wake Up! John Bull," *An Illustrated Supplement to the Review of Reviews*, March 10, 1900, 310.

[74] See, for example, "How to Wake Up John Bull," *The Review of Reviews*, January 1902, 94; and "Go Ahead! John Bull: A Supplement to the Review of Reviews," *The Review of Reviews*, February 1906, 197.

[75] "Wake Up! John Bull," *An Illustrated Supplement to the Review of Reviews,* November 15, 1902, 536.

[76] "Wake Up!" November 15, 1902, 537.

common to contemporary discourse.[77] A similar report in *The Review of Reviews* drew on an article in the *New York Journal* in 1899, which predicted the partition of the world divided between Great Britain, the United States and Russia, with the future Europe likened to Ancient Greece before Macedonia.[78] The alternative, the article reported, was the union of the 'English Speaking Nations', an idea much in vogue at the time.

Yet another report in the *Review of Reviews* was entitled 'How the World Takes Americanisation' and reported on the international response to a book entitled *The Americanisation of the World*, written by no other than W. T. Stead himself. Stead's thesis was that the 'Anglo-Saxon' nations would one day be united, which was reported as having been met with hostility by the colonies of the British Empire, such as Canada.[79] The review, which can hardly be considered unbiased, stated that the book had also met with much negativity from Continental Europe, alongside fear, although some commentators had concluded that Stead's foresight was admirable and impressive.[80] This interest in Anglo-American alliance or alignment is evident in many other articles, such as one entitled 'The Twentieth Century Peacemakers' in *The Contemporary Review*. Referencing a speech by Joseph Chamberlain, then Secretary of the Colonies, which the article saw as having been received very positively on both sides of the Atlantic, it suggested the value of a union between the two nations, and considered that it had the potential to enable peace-making across the globe.[81]

Many of these articles speak positively about the future of such an alliance, but they betray unease about the relative position of Great Britain and the United States. An article by Clarke, who was a politically radical socialist and journalist, in 1900, forecasts the future by comparing Britain with the rising industrial power of the United States

[77] "Wake Up!" November 15, 1902, 538.

[78] "Two Dips," 295.

[79] "How the World Takes Americanisation," *The Review of Reviews*, April 1902, 418.

[80] "How the World," 419.

[81] Albion W. Tourgee, "The Twentieth Century Peacemakers," *The Contemporary Review*, June 1899, 887. See also "The Future of America," *The Review of Reviews*, January 1898, 85. .

and Germany.[82] The article specifically notes that coal production in the United States had passed that of Britain, and that iron and steel production were now double that of Britain, which are more examples of the analysis made possible through the availability of national statistics. Clarke went further and attacked the notion - common at the time – of a colonial-imperial union, by suggesting that those former colonies would become manufacturing centres of their own.[83] More remarkably, Clarke provided an incisive forecast of what could happen to Britain, forecasting the rise of leisure and holiday resorts, with American and Australians buying estates in Britain. In summary, "England will prove an attractive spot to the rich…situated as she is close to the historic lands of Europe…with an old and well-ordered society, a secure Government."[84] He predicted the value of tourism and universities and conceives of England (Britain) as Athens to the Rome of the United States, decades before Macmillan's statement to the same effect in the 1950s.[85]

An article in *The Review of Reviews* attacked Clarke's article, however, casting scorn on his suggestions regarding Britain's inevitable decline.[86] This is to be expected, as Stead was delivering robust warnings about the danger to John Bull, aiming to reinvigorate the nation, rather than to admit defeat. Clarke himself may be found critiquing a book by Brook Adams entitled *America's Economic Supremacy*, in *The Speaker*, which set out an economic projection of the rise of the United States and how the West Indies – then part of the British Empire – would fall under the influence of its larger Continental neighbour.[87] Although Adams paralleled Clarke's own scepticism of British union with its colonies, he was critical of what he saw as Adams' 'economic interpretation of history' which he thought overshadowed ethical and political events. It is clear that statistical information on the leading powers of the time was driving Adams'

---

[82] William Clarke, "The Social Future of England," *The Contemporary Review,* December 1900, 859. Biographical details from *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for Willian Clarke (1852-1901), https://doi.org/10/1093/ref:odnb/42334.

[83] Clarke, "Social Future," 861.

[84] Clarke, "Social Future," 865.

[85] Clarke, "Social Future," 866.

[86] "The Future of England: her Industrial Doom Being Sealed," *The Review of Reviews*, December 1900, 554.

[87] William Clarke, "America's Economic Supremacy," *The Speaker*, November 10, 1900, 136.

assessment, as he also discussed the potential of Russia and Germany. Such hard facts, or at least data, drove concerns about Britain's position in the world, and were difficult to argue away, regardless of the vigour of writers like Stead. They fed predictions of the future, of decline and calls for renewal - statistics were driving argument and debate.

Not all forecasts of the future were purely concerned with the position of Britain and its rivals. Others looked at the future of continents, nations or regions, such as in a book review in *The Speaker*. The book reviewed was *Africa from South to North Through Marotseland* by a Major Gibbons, although the reviewer, L. March Philipps, spends more than three quarters of his review disregarding the book and instead discussing the future of colonisation.[88] His thesis was that Africa and South America were 'hotel annexes' for the "enterprising, expanding, multiplying, dominating races of the North."[89] He attacked a French theory that Africa should be the property of the 'Latin races' and instead saw the Continent as the domain of Europe, and South America that of the United States. As a forecast it is little more than a statement of colonial intent, and the future as seen by Phillips is one of continued European dominance.

An article penned five years later also discussed the future of the people of Africa, once more as subjects divorced of agency and to be managed by Europeans,. 'The Religious Future of the Negro' appeared in *The Review of Reviews in 1910*, reviewed an article by Harry Johnstone in *The Nineteenth Century* which considered that Christianity would be adopted by 'the Negro'.[90] The article concluded with the suggestion that the practice of Christianity would lead to universal peace and enable humanity to achieve:

[88] L. March Phillipps, "Future Colonisation," *The Speaker*, December 16, 1905, 281.

[89] Phillipps, "Colonisation," 281.

[90] "The Religious Future of the Negro," *The Review of Reviews*, June 1910, 534.

> the elimination of disease, of famine, of darkness; the conquest of the air and of the water…; the restoration of the world's beauty in forest and fauna; the abolition of the Glacial periods at the North and South Pole.[91]

It is not explicitly clear whether the author is adopting a providential tone in this assessment, although there seems to be a blurring the boundaries between religious and scientific methods of prophecy. Another article, this time from 1900, also discussed Africa, although its focus was shorter-term and concerned with the development of the continent as the 'Scramble for Africa' came to a close. What is interesting about the article, however, is its use of statistics with regard to revenues, which provided the foundation for its forecast of future development.[92] Largely, however, the article followed the traditional contemporary model of colonial expansion and the development of industries such as rubber and palm oil production using 'Negro labour.'[93]

The articles discussed above were supplemented by many others concerned with the future, on subjects including the church, drama and fiction.[94] Many of these are parochial, short term or limited in scope, but illustrate the range of readership interested in the subject. The number of periodicals with articles dedicated to the future is telling, as it includes specialist publications and a large number of the literary periodicals. The future of society, politics, religion and professions are all discussed, but they are only rarely brought together. For example, when the future of Britain and other nations in the world are discussed, the forecasts are largely unconcerned with technological and social change. Similarly, when Africa is discussed, continued colonisation is assumed with no consideration that it might end at some point in the future, however distantly. The articles on Britain's future focus on the potential dangers of the changing balance of power between it and its rivals, founded on an understanding of the shifting economic position globally, which – like population censuses – can only

[91] "The Religious Future," 534.

[92] Ernest Williams, "The Future of Africa," *The Windsor Magazine*, October 1900, 540.

[93] "Future of Africa," 552.

[94] "The Church of the Future," *The Review of Reviews*, February 1892, 156. John F. Runciman, "The Future of the Drama and the Drama of the Future," *The Magazine of Music*, January 1892, 6-7. Sprigg Stanhope, "The Fiction of the Future," *The Ludgate*, September 1896, 457-465.

come from the capture and recording of information. The period from the late 1880s to 1914 was one when statistics were becoming more commonly used in forecasts, and 'scientific' prophecy was increasing in importance. Nonetheless, full syntheses of how technology would affect society are uncommon, with the exception of Wells' *Anticipations,* which will be discussed in Chapter Seven.

Conclusions

A number of conclusions arise from this examination of how the periodicals interrogated the future. Firstly, the period saw a rise of scientific forecasting, as distinct from religious prophecy, along with a healthy debate on the feasibility of such prediction. While Wells and others believed that scientific prediction could discover the future, others were more sceptical in the face of complicated technological and social changes. Secondly, the articles in the periodicals reinforce I. F. Clarke's assertion that there were indeed many commentators interested in forecasting the future before Wells. In fact, it was the 1890s and early 1900s which saw the publication of a large number of such forecasts, which fade somewhat after 1902. Thirdly, there was an interest both in scientific advances for their own sake *and* their possible impact on society and the international order. The former tended to be optimistic, or neutral, while the latter tended to be more pessimistic, especially around the vexed question of Britain's future role in the world.

The assessment has also provided context for those articles specifically interested in the future of war. The 1890s saw a peak of fear about the potential consequences of a European Great War, as discussed in Chapter Three, at precisely the point predictions of the future were at their most numerous in the periodicals. Similarly, there is also a parallel between the way in which there are fewer articles on the future after the mid-1900s, with a decrease in the number of pieces on the future of war at the same time, as shown in Chapter Four. There is a contrast, however, between the two; general articles on the future would often look decades into the future, while those on the future of war tended to be focused on the immediate future. As will be explored in the chapters which follow, military commentators rarely looked into where technology might take war

beyond the immediate future. Civilians interested in its broader impact ventured further into the future, being unconcerned about their readiness to face what could be an imminent conflict.

Overall, quantification was becoming more important in prediction during the period, alongside the unstated fact that without relevant information, forecasting is more difficult. Just as the age was coming to be seen as 'scientific', so too were the means of forecasting the future. Although the use of statistics was by no means common, there is a sense of a new discipline beginning to take shape. The predictions themselves are often individually accurate, but are usually not accompanied by specific forecasts as to when they might happen, and even the social commentaries tend to focus on particular issues. Here, it was Wells' *Anticipations* which stood out, as a synthesis of the effects of technology on future society, as will be discussed in Chapter Seven. Nonetheless, it did not exist in a vacuum, being instead situated among widespread intellectual engagement on forecasting the future.

Chapter Three The Dread of War

The years between the Franco-German War and the Boer War have been described as "the climax of materialism".[1] At a time of precocious technological innovation, the weaponry available to the armies of the time changed beyond recognition in little more than a generation, such that when Britain went to war in South Africa in 1899 against an enemy armed with modern rifles and artillery, it found its Army unprepared for the conflict.[2] This chapter will explore how contemporary accounts in the British periodicals - and to a lesser extent the newspapers - responded to change during this period, and how they imagined the wars of the future would be fought. It will demonstrate that recognition of the way in which new weapons were changing war came, not after the Franco-German War, but with the Russo-Turkish War. Interest in the changing nature of war increased after that point, and by the last decade of the century there was a widespread expectation that a European war was imminent, coupled with a fear of its consequences, brought about by the pace of technological change and growth in the size of armies, which resulted in an unsettling 'dread of war'.

The research underpinning this chapter has been centred on a search through digitised British periodicals between 1870 and 1899, using the methodology described in Chapter One. Almost all of the articles identified are concerned with the future of a European conflict, with relatively little interest even in the United States and Japan, which were both still seen as geopolitical outsiders at the time. Similarly, colonial war was usually ignored when discussing new weapons and ways of waging war, with the exception of the1898 campaign in the Soudan. Technical novelty and its implications for the future were instead seen through the prism of a future 'Great War' in Europe. The authors of the articles throughout this thesis – and not just this chapter - are almost invariably men, with rare female voices.[3] Similarly, most are British, albeit with substantial representation from Germany, the United States and other European nations, through

[1] Brian Bond, *War and Society in Europe 1870-1970* (Stroud: Sutton Publishing, 1998 [first edition 1984]), 40.

[2] Steve Attridge, *Nationalism, Imperialism and Identity in Late Victorian Culture, Civil and Military Worlds,* (Basingstoke: Palgrave Macmillan, 2003), 2.

[3] The only article cited in this thesis which is definitely attributable to a woman is Jane Addams, "The Dynamic of Peace," *The Review of Reviews*, February 1907, 175.

translations of articles in their periodicals.[4] Names indicating a different ethnic origin are vanishingly small, although there is one example cited in this chapter, in a discussion on the Battle of Omdurman in the Soudan campaign.[5] Future war was largely a concern of the elites, although it was promulgated more widely through the newspapers and in fictional accounts of future conflict. As noted in the Introduction, this is illustrated by the fact that sixteen of the writers cited in this thesis appear in the *Oxford Dictionary of National Biography*.[6] A few remain household names, such as Arthur Conan Doyle and H. G. Wells, with the majority of the others being military leaders and journalists, many of the latter being also mentioned in the *Historical Dictionary of War Journalism*.[7]

This chapter begins with a discussion on the response of the periodicals to the Franco-German War, in terms of how it signalled a change in the conduct of war, as opposed to discussion of its political significance. There were a significant number of articles on the subject (it marks one of the peaks in the number of articles written about the future of war between 1871 and 1899) but they were exclusively interested in narrow technical developments. The chapter then moves on to reaction to the Russo-Turkish War, when recognition of the power of new weaponry emerged in force, and the Battle of Plevna became a touchstone for debate on the future of war, which was to resonate for the remainder of the century. The chapter goes on to cover discussion over the two decades following that war, which focused most strongly on apprehension of what a European conflict would bring, as witnessed by the increasing number of articles in the periodicals. It concludes with a discussion of the Soudan campaign, which was widely reported as it involved British forces, and where it was again recognised what the advances in weaponry could mean to a European conflict, amongst the triumphalism in the destruction of the Mahdi's armies with precisely those same weapons. The Soudan

[4] For the only example, see Ahmad Rafiuddin, "The Battle of Omdurman and the Mussulman World," *The Nineteenth Century*, October 1898, 688-696.

[5] For example, see "The Nightmare of the German General Staff," *The Review of Reviews*, February 1909, 113-115. This was a critique and partial translation of an article by the retired German General Alfred von Schlieffen on future war and its implications for Europe.

[6] *Oxford Dictionary of National Biography*, www.oxfordnb.com.

[7] Mitchel P. Roth, *Historical Dictionary of War Journalism* (London: Greenwood Press, 1997).

campaign happened only a year before the South African War began, which is discussed in Chapter Four.[8]

One of the conclusions of this chapter is that when 'the future of war' was discussed, it was generally seen as something which would happen in the immediate future. In almost all of the articles cited in this chapter, the focus is not really not the future, even a few years distant, but the present. After the Battle of Plevna there was a growing recognition that technology was changing war, but they are unlike the articles on the more general future, discussed in Chapter Two, which usually looked decades ahead. Even in articles focused on technological change, the emphasis is on how weapons entering service would change tactics, rather than what new inventions might come to pass in the future. As will emerge throughout this thesis, here is an example of writers seeing 'the trees' and not 'the wood' when facing technological change.

Reflections on the Franco-German War

The outcome of the Franco-German War of 1870 came as a profound shock to Europe, and was reported widely in the British press, both at its outset and during hostilities.[9] Although the war was fought with infantry, cavalry and artillery not dissimilar in appearance to those of the Napoleonic Wars, new weapons were deployed which had begun to change the character of conflict. There was some appreciation of these changes at the time, such as in an article written only a few days after France had declared war on Prussia. The anonymous author stated that it was neither possible, nor fruitful, to predict its outcome, citing writers passing judgement before the outcomes of the American Civil War and the Austro-Prussian War of 1866, and who were subsequently proved wrong in their judgement.[10] One of the contributing factors to this uncertainty, the author suggested, was the effects of new armaments, citing the decisive effect of the

[8] Britain was not involved in either the Franco-German War of 1870-71 or the Russo-Turkish War of 1877-78, although towards the conclusion of the latter it sent a fleet to deter Russia from further advances.

[9] The Franco-German war saw a new form of war journalism being practised, with the widespread use of the telegraph to send accurate and up-to-date reports to newspapers. Reporters from six nations, including Britain, provided reports to their home countries. Roth, "Historical Dictionary," 109.

[10] "The War of 1870," *The Saturday Review*, July 23, 1870, 100.

Prussian breechloading 'needle rifle' in the war of 1866 as an example of a weapon whose effectiveness had not been appreciated before the conflict.[11] This is one of the earliest recognitions of the way in which technology could impact war in an unpredictable manner, but it also one of the few articles of the time to show an interest in such philosophical considerations, with most focused on the future of war being more narrowly focused on new weapons.

Primary amongst these weapons was the French *mitrailleur*, an early form of machine gun, which excited considerable debate in the contemporary periodicals. This included the article cited above, published before the war had really begun, which summarily dismissed its value: "all recent experience tends to lessen expectation of great results from complicated forms of light artillery."[12] An article published shortly after the Battle of Sedan in 1870, which saw the defeat of the French Army in the field, concluded that the *mitrailleur* "would not bring about a revolution in tactics."[13] This judgement was based on its disappointing performance on the battlefield, largely due to its novelty leading to the French Army failing to deploy it effectively. The author was, however, more broadly sceptical of such innovations, citing many failed attempts to build effective "revolving or many barrelled cannon, multiple guns and rifle batteries of endless variety."[14] His conclusion was that such devices could usefully augment artillery and infantry, but do no more. The view that new technologies could only support current practice and tactics, rather than being revolutionary, reoccurs up to the First World War itself, as will also be reinforced in later chapters.

The countervailing point, also made throughout the period to 1914, was that new technology *could* transform war, as evident in an article written later in 1870. It concluded that the year would be marked by history as the first time an effective *mitrailleur* had been used in the field, before describing its use in British trials, along

[11] Four out of ten articles on the Franco-German War cited here were published in *The Saturday Review*, which showed a consistent interest in the future of warfare throughout the period, see Alvin Sullivan, *British Literary Magazines: The Victorian and Edwardian Age, 1837-1913* (London: Greenwood Press, 1984), 379.

[12] "The War of 1870," 101.

[13] "The Place of the Mitrailleur in War," *The Saturday Review*, September 3, 1870, 297.

[14] "The Place of the Mitrailleur in War," 296.

with the contemporaneous Gatling gun.[15] The unnamed author explicitly pointed to the disruptive impact of new technology and stated that "the wars of the last ten years have given a wonderful stimulus to inventive genius for improving old and designing fresh instruments of destruction."[16] The debate between those who were sceptical of the impact of new weapons, and those who saw them as agents of profound change, is evident at the very start of this period. It is interesting, however, that while the *mitrailleur* was the subject of debate, there was little immediate discussion of the way that the development of other weapons – such as infantry rifles and artillery – had impacted the conduct of warfare. A rare example that did was a review of a collection of lectures to the Literary and Historical Society of Quebec, dedicated to examining artillery tactics in the War, written in 1876. [17] The author, W. W. Knollys, discussed the *mitrailleur*, and reported that the increased power of the defence could be more important in the future, leading potentially to siege like operations, although Knollys himself did not agree with this judgement.[18] This is an early and unusual example of thinking beyond the immediate tactical implications of new weaponry.

Other writers focused on the wider military implications of the War, which had seen the leading military power in Europe, France, defeated comprehensively by Germany. The short article 'Military Lessons of the War' was published in August 1870, a few days before the Battle of Sedan and the capture of Napoleon III, concluded that the German success to date was due to the quality, training and discipline of its soldiers.[19] The anonymous author was even more convinced that it was the character of the German Army, as a force of conscripts reflecting the nation, which had driven their success, and considered that the concept of a narrowly constituted professional army to be past.[20] An article published in *Blackwood's Edinburgh Review* later in the year also focused on German success and used it as the basis of a call to arms for Britain, driving at the need

[15] "The Fighting of the Future," *The Examiner and London Review*, December 10, 1870, 786.

[16] "The Fighting of the Future", 785.

[17] W. W. Knollys, "Artillery Retrospect of the Last Great War, 1870, with its Lessons for Canadians," *The Academy*, September 16, 1876, 281-282.

[18] Knollys, "Artillery Retrospect," 282.

[19] "Military Lessons of the War," *The Examiner*, August 27, 1870, 553.

[20] "Military Lessons," 553.

for the nation to change its attitude to war, and criticising its national unpreparedness, considering that historically the nation "has not got herself into fighting condition till towards the end of a severe war."[21] The use of the threat of war to underpin a polemic on British unpreparedness was to be a repeated theme throughout the decades which follow, as a warning associated with fear of the decline of the nation and its Empire.

The notion of change in warfare was resisted vigorously in some quarters, as can be seen strongly from an article entitled 'The Military Officer of the Future' from 1873, written two years after the end of the Franco-German War and the vindication of the more professional approach of the German Army.[22] The article implied that dramatic change has come to the recent recruitment of officers, brought about through a stated 'recent revolution' in military matters, alluding to the Franco-German War.[23] The author was, however, entirely critical of the change to recruitment, disparaging 'book learning' and concluding that "unless some change is made, there is nothing to prevent the army being inundated with a class of persons who may be 'officers' but certainly will not be 'gentlemen'."[24] The author strongly believed in the need and benefits of a strict class divide between officers and men and remained confident of the superiority of British officers as leaders. From the perspective of future warfare, it simply disregarded any change in technical conditions or a need for officers to become more educated in response to changes in weaponry. Such conservatism, albeit rarely presented so firmly, was to be a feature of some writers up to 1914, who refused to believe that new technology or social changes affected the fundamentals of the Army and the practice of war.

The countervailing argument was expressed in the same year in *The Saturday Review*, which carried a critique of military practice, this time regarding an official publication from the War Office entitled 'A Precis of Modern Tactics.'[25] Like so many other reports

[21] "Thoughts Suggested by the War," *Blackwood's Edinburgh Magazine*, December 1870, 775.

[22] "The Military Officer of the Future," *The Saturday Review*, July 5, 1873, 17.

[23] "Military Officer," 17.

[24] "Military Officer," 18.

[25] "The War Office Guide to Tactics," *Saturday Review*, November 15, 1873, 640-641.

in the periodicals, this takes a military publication as its starting point, and demonstrates an understanding of similar works on tactics published in Germany.[26] In contrast to the previous article, it applauded the 'Precis' and its support for the development of 'scientific' officers.[27] The terms 'science' and 'scientific warfare', are widely used throughout the period, especially towards the end of the century. This can be seen as early as 1870, with the appropriately titled 'Science in War', written during the Franco-German War, commenting that the war had already demonstrated "the superior importance of what we may call the higher mathematics of war, compared with military mechanics."[28] The article from *Blackwood's Edinburgh Magazine* cited above made a similar point, stating that "time and space….have been greatly restricted in power by advancing science."[29]

Plevna

For all the occasional comments on science in warfare, however, reaction to what the new weapons used in the Franco-German War were somewhat mixed and muted. There was certainly no consensus that war in the future would be different, but all this was to change with the reaction to the Russo-Turkish War. Weaponry itself had evolved considerably in the six years since the conclusion of the former conflict in 1871, and so did the response from the periodicals. The latter war itself was extensively reported in Britain and the impact of new weapons on its conduct was understood from the beginning. For example, one article from *The Saturday Review*, published in 1878, concluded that:

> In those twenty-five years [since the Crimean War] has been compressed without any exaggeration the ordinary progress of centuries. Since the Crimean epoch the tactics of each arm have been transformed. The functions of each arm have been greatly amplified. The old drill formation, manoeuvres, mode of attack and

[26] "War Office Guide," 641.

[27] "War Office Guide," 641.

[28] "Science and War," *The Athenaeum*, September 3, 1870, 312.

[29] "Thoughts Suggested," 775.

> defence by infantry, the ponderous mass employment of cavalry, the conventional figuring of artillery, are now only to be found in historical records.[30]

The author's intent was to awaken the British establishment to the need to reform, so the quotation – like the article – verges on hyperbole. Nonetheless, the emphasis is clear: the pace of technological change had accelerated and war was transformed. After a lengthy assessment of the need to improve the quality and training of British volunteers, the author noted that the use of entrenchments in warfare had grown in importance, adding that this had already been demonstrated by the American Civil War, which had concluded thirteen years earlier.[31] The power of rifles and entrenchment were, indeed, the chief points raised in relation to the one battle of the war which received heavy coverage in the press, the Battle of Plevna, a five month struggle between Russian attackers and Turkish defenders. The Russians suffered huge casualties at the hands of the Turkish defenders, who were entrenched and armed with modern rifles, and the siege only ended when the Russians were able to bring up greatly superior numbers of men and force the Turks to surrender.

Plevna was widely reported in the press, with more than 80 correspondents visiting the front line, including detailed coverage by the experienced journalist Archibald Forbes (one of the authors of the fictional *Great War of 189-* discussed in Chapter Six).[32] The nature of the Battle was made clear to readers, as shown in this example from September 1877, published in *The Lancaster Gazette,* drawing on the testimony of a correspondent from *The Daily Telegraph*, described the Battle and how the Russian dead numbered 8,000 and "lay in even lines, just….as swathes of corn lie in the cornfield."[33]

---

[30] "Lessons of the War," *Saturday Review*, February 23, 1878, 235.

[31] "Lessons," 236.

[32] Roth, *"Historical Dictionary,"* 107. Archibald Forbes had been in the Army and was someone who admired Prussian military effectiveness, although liberal in his politics. One of his article on the future of war, written in 1891, is cited below, which was written contemporaneously with the publication of *The Great War of 189-,* of which he was one of the authors. Biographical details from *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for Archibald Forbes (1838-1900), https://doi.org/10/1093/ref:odnb/9815.

[33] "The Russo-Turkish War," *Lancaster Gazette*, September 22, 1877, 5. Parts of the Turkish Army were equipped with Winchester Model 1866 repeating rifles, a derivation of earlier examples used during the American Civil War; Graeme Rimer, *Firearms: An Illustrated History* (London: Dorling Kindersley, 2014), 118.

Although mass casualties were undoubtedly a feature of battles in the first half of the nineteenth century, the author was quick to pin the blame of this scene on the "deadly nature of the musketry fire which the Turks had fed with the almost perfect weapon which had been put into their hands for this war."[34] Here is recognition of the change in warfare brought about by the widespread introduction of the breech loading rifle, which was capable of firing at a rate several times faster than the muzzle loading rifles with which most armies of the mid-century had been armed.[35]

Other articles make the same point, albeit in a somewhat more sober fashion; in *The Examiner*, published on the same day as the report in *The Lancaster Gazette,* the author concluded that "if there is one lesson which taught more strongly than another by this miserable war it is that the breech-loader gives the defence in [defensive] positions a much greater superiority over the attack than it possessed in muzzle-loading days."[36] The remainder of the article concentrated on the lack of relevance of the 'barbarous' Russo-Turkish war to the British Army, although the author recognised a need for it to adapt to changing circumstances. The article 'Under Fire', written in January 1878 in *Chamber's Journal*, is more explicit in its analysis, and stated that traditional massed assaults in column could only lead to disastrous casualties when breech loaders are used, citing the huge Russian losses by way of example.[37] The author then drew a parallel with the Franco-German War, noting how the Prussian Guard lost heavily in its assault on Gravelotte, when they too attacked in column. This illustrates lessons of the war of 1870 being brought into clearer focus by the Russo-Turkish War. The article also noted the importance of entrenchments and the relatively high losses incurred by officers, which were both to be salient features of the First World War.

---

[34] "Russo-Turkish War," 1.

[35] As will be seen, much of the discussion in the periodicals concerned the introduction of breechloading rifles, which enabled soldiers to load and fire rounds rapidly, in contrast to the older muzzle loaders used as late as the American Civil War, which like the Wars of 1866 and 1870 in Europe, saw their widespread introduction. By the 1880s and 1890s armies were being re-equipped again with magazine rifles capable of firing up to twenty rounds a minute, such as the British Lee-Enfield which was entering service in 1898, and was to remain the Army's main infantry arm, with minor modifications, until the 1950s.

[36] "Some Lessons of the War," *The Examiner*, September 22, 1877, 1194.

[37] "Under Fire," *Chamber's Journal*, January 19, 1878, 44. Columnal formations had been used since the Napoleonic period, to mass troops for an attack. They had always been vulnerable to defensive fire, but provided the attackers with an advantage in morale and control by keeping the troops in close order.

Plevna was to feature in the narratives of war right through to the end of the nineteenth century, demonstrating its importance as the event which marked the widespread recognition of the power of breechloading rifles. For example, the battle is referenced in an article in 1897 in *Chamber's Journal*, entitled emphatically as 'Science and Slaughter.'[38] Even later, when writing on the South African War, which was then in progress, a writer in *The Nineteenth Century* stated that, "unfortunately the training of our officers in military tactics has been directed rather to the study of the Franco-German War than to that of the Russo-Turkish campaign."[39] The emphasis here is that – even after 22 years – Plevna and the wider war were the moment warfare changed, with the author criticising the British Army for its conservatism, as part of the long tradition of articles by civilian writers attacking the military establishment. What is evident here, again, is the way in which Plevna and the Russo-Turkish War highlighted lessons from the American Civil War and Franco-German War, neither of which had been the subject of such vigorous debate eight years earlier.

Articles relating to tactics in the light of the Russo-Turkish War resonated through the decade or so after 1878. An example is an article on field artillery, written in 1881, where the author draws on the lessons of both the Russo-Turkish War and the War of 1870 to theorise that artillery had become more vulnerable to rifle fire, as well as being less useful due to the wider use of entrenchments and dispersed infantry formations.[40] The author based his assessment on statistics from the Franco-German War and, as an advocate of artillery (it seems likely he was a serving officer), put his hope in new forms of guns, including what would now be termed machine guns, to restore the value of artillery on the battlefield in future.[41] This illustrates an understanding of change and he put far more faith in new invention than was typically expressed ten years earlier with the discussion of the *mitrailleur*.[42] It also illustrates the difficulty which military

[38] "Science and Slaughter," *Chamber's Journal*, May 22, 1897, 326.

[39] Thring, "Lessons of the War," *The Nineteenth Century*, November 1900, 696.

[40] "The Future of Field Artillery," *Saturday Review*, November 19, 1881, 633.

[41] "Future of Field Artillery," 634. This includes a reference to Colonel Brackenbury's suggestion for the use of metal shields to protect gunners against infantry fire, as discussed in C. B. Brackenbury, "Ironclad Field Artillery," *The Nineteenth Century*, July 1878, 40-50.

[42] For example, see "The Place of the Mitrailleur in War," 296.

theorists faced at the time – change was rapid and reasonable inferences from one conflict, such as diminishment of artillery, could be rapidly overturned by the development of new weapons.[43] Hindsight makes it possible to criticise contemporary writers for what seem like eccentric views, but rapid change was disorientating, especially at a time when weaponry was evolving with frightening rapidity.

Two further articles written at the turn of the 1880s usefully summarise the state of debate on tactics at the time; they draw on military papers or lectures and are alive to the changes brought about by new technology. They are emphatic as to the effect of long range rifle fire, once more quoting heavy Prussian casualties in the Battle of Gravelotte in 1870, and the range at which Turkish infantry engaged Russian attackers at Plevna.[44] There is also agreement that the way in which cavalry, infantry and artillery – the classic divisions of a nineteenth century army – acted on the battlefield would have to change, with infantry becoming the dominant arm.[45] It contains a call, echoing the article above, that artillery should be abolished after Plevna.[46] There is also recognition that while close order infantry attacks were no longer viable, dispersed order will lead to difficulties commanding troops in loose order.[47] To re-iterate, these articles show how military thinking, and its reporting in the press, had changed in the decade since the Franco-German War, as well as illustrating a keen understanding of how great the effect of new weapons would be on future European warfare. Nonetheless, they do *not* move on to discuss the impact of such changes on the feasibility of war in future, and do not synthesise their findings from a tactical level to a strategic level. These articles imagine war continuing to be fought along the same broad lines, rather than being changed at a fundamental level.

---

[43] At the time the range of rifle fire had increased so rapidly that it threatened artillerymen, reducing its effectiveness, and yet later in the century, this position changed again with the introduction of longer range artillery. For a view on artillery typical of the time, see Dyke's Lectures on Tactics," *Saturday Review*, April 15, 1882, 472-474.

[44] For the comments on Gravelotte, see "Long-Range Infantry Fire," *Saturday Review*, December 18, 1880, 765, and "Art IV. Gunpowder & Modern Warfare," *The Dublin Review*, October 1879, 392. For comment on Plevna, see "Long-Range Infantry Fire," 765.

[45] "Dyke's Lectures," 472, and "Gunpowder and Modern Warfare," 383.

[46] "Dyke's Lectures," 473.

[47] "Gunpowder & Modern Warfare," 389 and "Dyke's Lectures," 472.

Even more than the artillery, there was considerable debate on cavalry during the period, with the War of 1870 leading to some military commentators suggesting that the use of cavalry on the battlefield was no longer feasible in the era of breechloading rifles, and that only by becoming mounted infantry – or 'dragoons' to use the term familiar from the Early Modern – could they still be of value. It is far easier to find articles about cavalry than artillery at this time, and as noted in Chapter One, debate on the role of the cavalry went on throughout the period 1870 to 1914, with disproportionate interest being shown in it, because of its associations with class, chivalry and notions of man-to-man combat. The discussion on the cavalry after 1878 also highlights the uncertainty felt in forecasting the future, which can be seen in two reviews of the same work, *A History of Cavalry from the Earliest Times* by Colonel Denison. The reviewer in *The Athenaeum* was highly critical of Denison's suggestion that the majority of the cavalry should be rearmed as dragoons, taking a conservative view of military practice.[48] In contrast C. W. Wilson, writing in *The Academy*, agreed strongly with Denison's positive view of mounted infantry, although considering that 'true' cavalry could still have a role conducting charges with small units.[49]

One anonymous author writing in *The Saturday Review* took a middle road, suggesting that it was impossible to predict the best role for cavalry in the future, and that a mix of 'true' cavalry and mounted infantry is the best response when "in this age of change, it is dangerous to adopt any fixed, unalterable, standard."[50] He is making explicit the difficulty of forecasting the future, and of the dangers of making changes to military practice on the basis of such unstable foundations. Such voices were rare, however, and much of the cavalry debate continued with entrenched (to borrow an appropriate phrase) positions on whether or not to fight mounted, which used evidence from recent wars to their own ends. More widely, however, these articles show recognition that the

[48] "A History of Cavalry from the Earliest Times: with Lessons for the Future," *The Athenaeum*, June 2, 1877, 698.

[49] C. W. Wilson, "A History of Cavalry from the Earliest Times: with Lessons for the Future," *The Academy*, September 8, 1877, 239. For another conservative view, see Keith Fraser's vociferous calls for the retention of cavalry armed with swords or lances, in his lengthy article on 'European Cavalry' in 1884; Keith Fraser, "European Cavalry," *The Fortnightly Review*, Oct 1884, 502. Another article which is highly critical of the concept of mounted infantry, is "Mounted Infantry," *Saturday Review*, September 24, 1881, 388-389.

[50] "Cavalry Tactics," *The Saturday Review*, April 20, 1878, 505.

idea of rapid and open-ended change was beginning to be appreciated in the light of the Russo-Turkish War.

The War also generated broader debate on what the new weapons would mean for the future, as in an article written in 1878 entitled 'War and Science', which remarked that the breechloader had taken away the 'heroism' of previous conflicts, although the author managed to inject considerable sarcasm into the phrase, noting that "scientific soldiers are on the outlook for some means of circumventing the new modes of defence."[51] The author also looked forward to more terrible means of destruction on the battlefield, imagining the use of poison gas and aerial bombardment, and suggested that while the use of poison-shells may seem less chivalrous than breechloading rifles, both represented scientific methods of killing with an equal standing in ethics.[52] The author was looking further than the immediate future than most writing at the time, and while his forecasts are vague, they show a growing understanding of *change*, and the implications of the continued development of weapons to uncertain ends.

A different sort of speculation is evident in a rather diffuse article written by Keningdale Cook slightly earlier in 1877, although it too states that "war has become a scientific problem."[53] Cook also suggested that the future will see the use of chemical – or electrical – weapons capable of annihilating a battalion from miles distant.[54] He goes further, however, concluding that "we have seen such vast changes in the methods of war that there is no antecedent improbability against the advent of changes still more vast."[55] Cook even wondered if science might eventually lead to war being so terrible that it will not be waged.[56] He looked back to more chivalrous times, as he saw them, with affection, and hoped for a peaceful future, with an obvious sense of horror for the

[51] "War and Science," *The Examiner*, February 9, 1878, 168.

[52] "War and Science," 170.

[53] Keningdale Cook, "The Logic of the Methods of War," *Dublin University Magazine,* November 1877, 515.

[54] Cook, "Methods of War," 518.

[55] Cook, "Methods of War," 522.

[56] Cook, "Methods of War," 522.

way new weapons had changed war. As will be seen below, he was not alone in wondering if the increased power of armaments might eventually bring an end to war.

Further appreciation of the effect of new technology on war on the whole is evident in two articles from more than a decade later. Knollys, who penned the 1876 review of the effectiveness of artillery cited above, presented a lengthy summary, in 1890, of 'War in the Future'.[57] Key to his thesis was the idea that change would continue, such that "it is the opinion of thoughtful officers that some at [sic] all events of the new factors will produce a startling modification in the art of war."[58] Knollys creates - or has drawn from other sources – a remarkably astute vision of the future which is close to the First World War, such that an attack would be conducted as follows:

> I therefore see nothing for it, when it becomes absolutely necessary to attack a deliberately occupied position of fair strength, but to advance by a succession of stages, the assailants entrenching themselves at the end of each stage under cover of their artillery. Such being the case, I consider that the defence, if conducted by resolute troops, is now superior to the attack.[59]

Knollys is suggesting that war would resemble the siege warfare of the seventeenth century, stressing the importance of railways to bring up troops, and that cavalry would have to demonstrate a greater level of initiative for their arm to operate successfully. He even considered the possibility of dirigible balloons and searchlights being used widely in warfare in the future.[60] What differentiates his assessment of the future of warfare from the articles discussed above is that it is an unusual synthesises of observations from recent conflicts.

Archibald Forbes, writing in 1891, also argued that the introduction of magazine rifles represented a revolution in military matters, in a more historically focused article which

[57] W. W. Knollys, "War in the Future," *The Fortnightly Review*, August 1890, 274-281.

[58] Knollys, "War in the Future," 274.

[59] Knollys, "War in the Future," 279.

[60] Knollys, "War in the Future," 276.

contrasted their use with muskets of the 'smoothbore' era.[61] Forbes contended that the introduction of smokeless powder would further strengthen the defence, and that entrenchments would play a significant role in future wars.[62] His assessment was less profound than Knolly's, as it was largely based on a discussion on small arms, but he also mused on the build-up of European armies such that:

> In conclusion, it may be worthwhile to point out that the current impression, that the maintenance by states of 'bloated armaments' is a keen incentive to war, is fallacious. How often do we hear, 'There must be a big war soon; the powers cannot long stand the cost of looking at each other, all armed to the teeth.' War is infinitely more costly than the costliest preparedness.[63]

Forbes was saying that the sheer cost of war deterred conflict, and went on to suggest that the shadow of national bankruptcy hung over the great powers. His article is one of those which exhibited a deep fear for what a war could bring, which will now be explored in more detail.

A Great War in Europe

The perceived imminence and terrible consequences of a Great War in Europe were discussed in numerous articles in the late 1880s and 1890s. This trend is illustrated by two pieces written by authors with very different political positions, both of who expressed deep fears of a future war in Europe. 'Progress and War' was written by Goldwin Smith and suggested that "science is now changing the fundamental beliefs and through them the life of man." [64] He held that although armies were being driven to fight at greater distances, in the end war could become so destructive as to be impossible.[65] He retained some optimism, in the sense that the wounded were being treated better in

[61] Archibald Forbes, "The Warfare of the Future," *The Nineteenth Century: A Monthly Review*, May 1891, 782.
[62] "Warfare of the Future," 789.
[63] "Warfare of the Future," 795.
[64] Goldwin Smith, "Progress and War," *Macmillan's Magazine*, July 1889, 235.
[65] Smith, "Progress and War," 236.

modern warfare, but his tone was that science is changing the world and warfare, and not for the better.[66] Smith was a noted journalist with liberal views, radicalised by the cause of anti-slavery during the American Civil War, who opposed British imperialism in the late Victorian period, including the South African War.[67] In contrast, Frederick Greenwood, who published the aptly titled 'Great War: or Civilisation its own Executioner' in *Macmillan's Magazine* in 1893 was a Tory and anti-liberal (as well as the inaugural editor of *The Pall Mall Gazette*).[68] He wrote that, if anything, the fear of war was so widely held that:

> Wherever there is an intelligent or tolerably instructed mind in Europe, then you are pretty sure to find something like a settled belief that though the disaster may not arrive next year, nor the next, a war more sweeping and terrible than as yet recorded is almost a matter of certainty. [69]

Greenwood's article is extremely pessimistic, and it is interesting that both he and the liberal Smith shared fear of what a Great War in Europe would bring. Greenwood's article in particular is eerily prophetic, writing that a coalition war was likely, and that "the Great War of universal prophecy will be waged by groups of nations, so that groups of nations may be crushed almost irretrievably."[70] His comment was, with hindsight, prophetic, as 1917-18 saw the collapse of the Russian, German and Austro-Hungarian Empires. Greenwood was also fearful of what progress could bring, including aerial bombardment, writing at a time when only very limited controlled flight had been achieved, but alive to the fact that technological change would dominate future

[66] Smith is derisive towards cavalry, suggesting that they "have been rendered as useful as elephants except in the character of mounted riflemen", from Smith, "Progress and War," 236.

[67] Biographical details from *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for Goldwin Smith (1823-1910), https://doi.org/10/1093/ref:odnb/36142.

[68] Biographical details from *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for Frederick Green (1830-1909), https://doi.org/10/1093/ref:odnb/33544.

[69] Frederick Greenwood, "The Great War: or, Civilisation its own Executioner," *Macmillan's Magazine*. October 1893, 414.

[70] Greenwood, "The Great War," 416.

conflict.[71] Care must be taken, of course, to pick out such examples of accurate prediction, especially amongst a wealth of sources, but what runs through these fearful predictions is the anticipation of continued, unstoppable future invention. As Greenwood put it, "war has not been presented yet with its deadliest equipment."[72]

Similar sentiments are also reflected in 'Armed Europe' written by A. Alison in *Blackwood's Magazine* in 1893, with its picture of the five European powers in a state of constant armed preparation.[73] Another article written by an anonymous contributor in *The Speaker* in 1894, entitled 'The Next War', also suggests that the fear of an imminent war was widespread, such that:

> Horror of the unproved, unknown, but imagined effects of modern armaments has hitherto, it is generally believed, helped to keep the Powers from conflict; but if the inventors go on meeting attack with defence, and if the critics go on propounding the most contradictory estimates of what is likely to happen, it is possible that sheer curiosity, piqued before endurance, may in the end neutralise the vague dread which is now so operative, and that the nations may find themselves deciding the great question of peace and war, as of old, at the naked promptings of passion and interest. [74]

The author is suggesting that the balance of power had so far held, due to the very uncertainty of the effects of new weaponry, but that irrational self-interest could drive Europe to war. He also wondered if a generation unused to the realities of war could bring about its onset through ignorance of its likely consequences, which Chapter One

[71] A significant milestone in controlled flight was achieved on 2 July 1900 by the airship Zeppelin LZ-1, four years before the Wright Brothers became the first to make a successful flight with a heavier than air craft. Fourteen years after their first successful flight, Zeppelins were indeed used to bombard enemy cities from the air.

[72] Greenwood, "The Great War," 417.

[73] A. Alison, "Armed Europe: How Coming Events Cast Their Shadows Before," *Blackwood's Edinburgh Magazine*, December 1893, 755-764. The five European Powers, it can be assumed, are France, Germany, Austro-Hungary, Russia and Italy.

[74] "The Next War," *The Speaker: the Liberal Review*, June 9, 1894, 634.

does suggest was one contributing factor towards war in 1914 being welcomed by many.[75]

Other writers also pointed to rapid change as the root of pessimistic predictions, both in terms of the baleful effect of 'science' on armaments, and in the rapidly expanding size of contemporary armies. For example, from 1893, again from *The Speaker*, "The New Year opens with Europe at peace. But six armies, huger than any the world has ever seen, armed with a deadlier enginery of scientific efficiency hitherto unprecedented, stand watching one another…"[76] A year later and Charles Roberts wrote that the number of Europeans under arms had risen from 2.2 million in 1869 to 3.2 million in 1892.[77] Yet another, G. Osborne Morgan, also spared little in his description of what would happen in a conflict between France and Russia on the one hand, and the Central Powers on the other: "a war between States capable of mobilising such enormous masses of men and wielding such tremendous engines of destruction…..is one from which the imagination recoils."[78] Morgan's article, like others, focuses on the realities – and dangers - of the contemporary European political position, with the Dual Alliance of France and Russia facing the Triple Alliance of Germany, Austro-Hungary and Italy.[79]

Although grounded in the contemporary diplomatic position, Morgan's article also recognised that the specific potential trigger for conflict could and would change, such that the true threat was simply the existence of "some twenty-seven millions of men ready to spring to arms in a fortnight."[80] Equally importantly, material progress in armaments had a direct bearing on international relations, making the Powers reluctant

[75] "The Next War," 634. The author writes positively of the work of Forbes, author of "The Warfare of the Future."

[76] "Peace Prospects in Europe," *The Speaker: the Liberal Review*, January 7, 1893, 7-8.

[77] Charles Roberts, "European Militarism and an Alternative," *The Economic Review*, January 1894, 87-101. Figures presented in "Armed Europe" broadly support these figures, although the author suggests that the peacetime strength of the five powers is 2.5 million, with a much higher figure for wartime strength.

[78] G. Osborne Morgan, "Peace or War," *The Contemporary Review*, October 1891, 475.

[79] See also, for example, Alison, "Armed Europe" and Greenwood, "The Great War."

[80] Morgan, "Peace or War," 469. His figure seems high, even including the use of wartime reserves, but his point matters more than the precise figures. The disparity in weapons is echoed in Morgan, "Peace Prospects," 8, with the author thinking it likely that Russia would not attempt any aggression until its armies were equipped with magazine rifles.

to start conflict out of the uncertainty of what new weapons might do, which is the same point made in 'The Next War', quoted above.[81] There was, however, uncertainty over this point as well, and Greenwood, in his article 'The Great War', wondered if a new weapon could actually precipitate war, citing the role the Prussian needle gun had had in the nation's victory over Austro-Hungary in 1866, and suggesting that an aggressor believing they had an advantage in weaponry might start a war, albeit with uncertain and possibly terrible consequences.[82]

These articles are all alive to the uncertainty brought about by advances in weaponry, which might arrest the likelihood of conflict, but could equally cause one nation to attack another on the basis of a perceived superiority in armament. They also take the lessons of Plevna and expand them into a strategic context, linking the power of weaponry with the vast expansion in the size of armies seen in Europe. The crucial exception to the growth of armies in Europe was Britain, which commentators considered had a special and distinct status amongst the European powers. While the impartiality of the writers is questionable, their views reflect the British Government's policy of staying out of Continental alliances, and they assumed that the nation would not be involved in a future European War.[83] In his analysis of the strength of European armies, for example, Alison wrote that Britain "will remain neutral so long as her interests are not directly threatened."[84] Greenwood suggested that there was danger in Britain being drawn into a war on mainland Europe, with "the British Empire [being] doomed to go to pieces in the Great War which otherwise might have been avoided."[85] Similarly, Charles Roberts considered that there was a danger of Britain being drawn into a European War, worrying that the country was "helplessly drifting into the European competition in

[81] Morgan, "Peace and War," 472. Morgan makes a prescient point later in his article, when discussing any invasion of Australia, claiming that a colonist once told him that, 'I do not envy the force which attempts a landing in a country where every man can ride and every man can shoot straight,' from Morgan, "Peace and War," 476. Apocryphal or not, this assertion was to prove true in 1899, when the British Army invaded the Boer Republics and began the South African War against an army of farmers armed with modern rifles.

[82] Greenwood, "The Great War," 418.

[83] Morgan, "Peace or War," 476.

[84] Alison, "Armed Europe," 763.

[85] Greenwood, "The Great War," 424.

military armaments."[86] Their concerns were right, of course, and the early twentieth century saw the end of the policy of 'splendid isolation', the *Entente Cordiale* with France, and involvement in the First World War from the start.

The 1890s also saw a wider apprehension towards the future of the British Empire, with a number of writers discussing the possible impact of a war on Britain's food supply.[87] T. A. Le Mesurier recognised that the increase in Britain's population over the past century, as well as higher living standards (criticised through people being too used to luxuries), had made the country more vulnerable to attack by 'privateers'.[88] Other writers looked at different aspects of Britain's position, such as Breton, whose 'Thoughts on Imperial Defence' suggested that given the size of the Empire, defence was now required, rather than further territorial acquisition.[89] A growing sense of vulnerability is also evident in articles suggesting a closer relationship with America, and it is hard not to see desperation in articles seeing the United States as a growing power with cultural and historical links to Britain and its Empire.[90] These articles are not concerned directly with technological change, although they often grapple with the effects of wider change – such as with food production or the growth of armies in Europe.

There are fewer articles on war in the future towards the end of the decade, perhaps reflecting the fact that a Great War had *not* happened, although two later articles present both a fear of war and hope that conflict could lead to a moral revival. H. W. Wilson, writing in 1898, presented the same familiar fears as earlier writers, such that "the growing expenditure on armaments and the prevalence of militarism…are the object of

[86] Charles Roberts, "European Militarism and an Alternative," *The Economic Review*, January 1894, 87.

[87] See T. A. Le Mesurier, "Our Food Supply in Time of War," *Westminster Review*, June 1897, 658-668. See also G. S. Clarke, "War, Trade and Food Supply," *The National Review*, July 1897, 756-769.

[88] Le Mesurier, "Food Supply", 659. He writes of privateers, looking back to commerce raiders such as the Confederate raider 'Alabama' in the American Civil War, but his commentary could equally be applied to the threat for submarines, which were not to enter widespread service until the first decade of the twentieth century.

[89] H. D'Arch Breton, "Thoughts on Imperial Defence," *Blackwood's Edinburgh Magazine*, May 1895, 665-688.

[90] See Frederick Greenwood, "The Anglo-American Future." *The Nineteenth Century*, July 1898, 1-11; and also Le Mesurier, "Food Supply". Breton instead discusses closer ties with the dominions of the Empire, which was an idea much discussed at the turn of the century, in response to concerns over its future in response to 'rising' powers such as Germany. Chapter Four discusses the vogue for Anglo-American cooperation in more detail.

solicitude and alarm in this country."[91] Wilson also wrote, however, that war could counter the 'degeneration' of the physical condition of city dwellers such that "it may be the salvation of our race."[92] Sydney Low, in the same year, also wrote favourably of war, criticising the possibility of disarmament, and suggesting that it alone drives "the highest excellence in art, science, learning and industry."[93] He further feared that disarmament would mean that the 'Aryan race' could face a threat from other 'races' "possessed of that amount of intelligence necessary for the handling of scientific warlike appliances."[94] He called for Britain to increase spending on armaments, and believed that future wars will be short but terrible, a commonly held assumption of the time discussed at more length in Chapter Seven. His concerns over degeneration, conflict between races and the purifying nature of war are not untypical of the time, although many more articles regard war with deep concern. In one regard Wilson is eccentric, suggesting that modern armaments had made no difference to warfare, and that they were effectively a costly nuisance.[95]

The period 1878 to 1898 saw a growing recognition that war in the future would not necessarily resemble war in the past, bringing with it a somewhat vague but unsettling dread, because of the very uncertainty new technology was introducing to warfare. This realisation is evident in the way history was not used to bolster the arguments put forward in the periodicals. There are relatively few articles on land warfare which draw on history to underpin their arguments, instead focusing more on future change. [96] There are isolated exceptions, such as when discussing cavalry, or in the lengthy 1879

[91] H. W. Wilson, "The Growth of the World's Armaments," *The Nineteenth Century: A Monthly Review*, May 1898, 716.

[92] Wilson, "Growth of the World's Armaments," 716.

[93] Sidney Low, "Should Europe Disarm," *The Nineteenth Century: A Monthly Review*, October 1898, 523.

[94] Low, "Should Europe Disarm," 524. He goes on to conjure up a vision of a Mongolian horde pouring across the Continents, comparing it to Wells' "clever fantasy of the inhabitants of Mars swooping …upon the green fields of Earth." This is ironic in that Wells' partly conceived *The War of the Worlds* as an analogy of Europeans with superior weapon conquering more 'primitive' opponents.

[95] "Should Europe Disarm," 530.

[96] There are also articles which discuss technological change, history, and warfare at sea. Nauticus, "Sea Power: Its Past and Future," *The Fortnightly Review*, December 1893, 849-868, contains a lengthy discussion of the Napoleonic Wars. H. Geffcken, "The Future of Maritime Warfare," *The Contemporary Review*, January 1894, 29-45, discusses the impact of steam power on maritime

discussion on the evolution of gunpowder weapons, but they are relatively rare.[97] Only one subject with a historical perspective relating to land warfare was discussed at length, and that was what casualties might be expected in future conflicts. Here there is a surprising contention: namely that they would be *lower* in the future as a result of the introduction of more powerful weapons. In 1878, for example, an analysis of the Russo-Turkish War noted that the losses in recent wars had been lower than in Napoleonic times, as a proportion of the size of armies "notwithstanding (or perhaps in consequence of) improved armaments."[98] The author concluded that this has happened because of fighting in loose order, and through an understandable reluctance of troops to stand in the face of fire, while noting that Plevna was an exception to this rule because the Russians attacked in heavy columns and paid the price for what he saw as antiquated tactics.

Other articles make the same point about casualties, with the author of the lengthy historical treatise 'Gunpowder and Modern Weapons' commenting that "there is no doubt that a smaller number are killed now than formerly was the case before gunpowder was invented, and a still smaller number now than in the wars at the beginning of the century."[99] Knollys, in his article on the future of war, presented a similar argument but commented that the losses of individual units in an army could well be higher, seeing them almost annihilated, whereas the proportion of total casualties in an army might fall, in many ways foreshadowing the shattering losses incurred by individual battalions in the First World War.[100] The same argument was made towards the end of the 1890s, still using Plevna as a point of reference, saying that casualties would "deter any general in the future from attempting to storm fortified

[97] For example, "A History of Cavalry," and "Gunpowder & Modern Weapons."

[98] "Under Fire," 45.

[99] "Gunpowder & Modern Weapons," 394. A similar point is made in "The Next War", 634, quoting work from Forbes.

[100] Knollys, "War in the Future," 281.

positions held by troops armed with breech-loaders until the defenders have been thoroughly demoralised by artillery fire."[101]

As with much of the discussion of future war in this period, there is a detachment in these articles, amounting to coldness. There were exceptions, such as Knollys, for example, who commented on the 'moral' effect of future combat and the trial of crossing a hostile fire zone in loose order, suggesting that it would require considerable discipline and *esprit de corps*, which he considered 'English' troops to possess.[102] Further, the author of 'Under Fire' ended his piece with a very humane statement on the effect of war: "terrible it is to think that when men meet in battle the rapid fire of the rifle is doing its work not only in the field, but far away in distant cities and villages where the sound of the fighting cannot be heard; and where there are women and children and old men to whom that fight will bring sorrow and pain and even death….which our statistics cannot touch."[103] Such sentiments were rare in the articles on the future of war, but the article shares with the others a recognition that warfare was changing due to improvements in weaponry.[104] A few commentators saw the chance for national or cultural renewal in a Great War, but most saw disaster.

Imperial Overkill

One colonial war figured heavily in the periodicals and press in 1898, a year before the South African War, and that was the campaign in the Soudan. Technological advances in weaponry and medicine, coupled with imperial rivalry, resulted in the European powers establishing formal empires over the vast majority of Africa, as well as Oceania and

[101] "Science and Slaughter," 326.

[102] Knollys, "War in the Future," 281.

[103] "Under Fire", 46-47.

[104] Engels, who was so interested in warfare that he earned the nickname 'the General' from Marx, predicted the likely outcome of a European War in apocalyptic but prescient terms in 1888: "eight to ten million soldiers will destroy one another and bleed Europe white. .. .the destruction of the Thirty Years War will be concentrated into three or four years." Engels' prediction is almost precise, but he was not alone in voicing his fears, as articles from the periodicals illustrate. See a letter from Engels on 7 January 1888, quoted in Martin Kitchen, " Friedrich Engels' Theory of War," *Military Affairs*, 3 (1977): 122.

South-East Asia, between 1881 and 1914.[105] Modern breechloading rifles and Maxim guns – the first true machine guns – enabled small numbers of disciplined European troops to defeat far larger indigenous armies, which perhaps reached its culmination on 2 September 1898 at the Battle of Omdurman, described by Ferguson as "imperial overkill".[106] The Battle was fought between the army of the Mahdist State in the Sudan, commanded by its ruler Abdullah al-Khalifa, and an Anglo-Egyptian army commanded by Sir Herbert Kitchener, who sought to overthrow the State and exact vengeance for the death of General Gordon in 1884. The Mahdist army, estimated to have a strength of 50,000, was larger than Kitchener's, which was made up of some 8,000 British troops and approximately twice as many Egyptian and Sudanese soldiers. At dawn the Dervishes' conducted a charge against the Anglo-Egyptian army, which possessed magazine rifles, machine guns and quick firing artillery on land and on gunboats on the Nile. The result was a one-sided slaughter, with contemporary reports recording 47 British and Egyptian dead, and 389 wounded, as against an estimated 10,800 Dervish dead and 16,000 wounded.[107]

The Battle was treated as an event by the British press "that will live long in the memory of the British nation."[108] There was an almost desperate triumphalism in many of the contemporary accounts, such as a full page illustration in *Fun!* of the British lion savaging a Dervish enemy, presumably al-Khalifa himself, accompanied by the caption 'Gordon Avenged.'[109] There was also a vigorous debate on the mistreatment of prisoners after the Battle, ignited by an accusatory article in *The Contemporary Review* by Bennett.[110] It was this periodical, and *The Saturday Review*, in which Omdurman was

[105] Niall Ferguson, *Empire* (London: Penguin, 2003), 222.

[106] Ferguson, "Empire," 267.

[107] Wentworth Huyshe, "The Omdurman Victory," *The Saturday Review*, September 10, 1898, 333.

[108] "Lyddite – The New Explosive," *Chamber's Journal*, December 31, 1898, 72. This article is largely technical and discusses the impact of Lyddite, a novel, powerful and easily handled explosive used in shells by the British Army

[109] "Omdurman" *Fun!,* September 13, 1898, 84. It should be noted that the accompanying verses to the illustration also contain an element of contemporary concern over the state of the British Empire, with lines regarding the British 'lion' such as "That he is old and sickly/ Is constantly averred/ But where are his traducers/ When once his roar is heard."

[110] Ernest N. Bennett, "After Omdurman," *The Contemporary Review*, January 1899, 18-33. Bennett's report criticises not only the treatment of wounded prisoners, but also alleged widespread theft in the town of

most vigorously discussed; Bennett was a Tory politician and journalist who was critical of the Mahdist regime but angry at the perceived treatment of prisoners; he was later to go on to praise British troops in South Africa.[111]

A number of articles, however, focused on devastation wrought by modern weapons and the resulting disparity in casualty rates between the two armies. F. Maurice, writing three months after the Battle, gave an account which emphasised the dangers which he considers that the Anglo-Egyptian army faced before Omdurman, responding to criticism that it had been such a one sided conflict as to count it barely a battle at all.[112] Nonetheless, towards the end of the article, he highlighted "the appalling power of our new weapons – notably of the effect of rifled shrapnel, of an approach to quick-firing guns, of the long-range volleys of infantry, and, above all, the howitzers with their high-explosive shells."[113] He concluded that the next European War, which like so many others he thought certain to happen, would be fought under conditions utterly dissimilar to the Franco-German War, and that those who thought war unchanged by technology dangerously misguided. Tellingly, in response to those who considered morale in warfare to be paramount, he commented that "if any accumulation of numbers or any supreme readiness to sacrifice life would enable a body of attacking troops to advance in front against modern infantry and artillery fire, beyond doubt the Dervishes would have broken into our ranks at Omdurman."[114]

Maurice was not alone in his conclusion; in a letter to *The Saturday Review*, a fortnight after the Battle, the correspondent dismissed it as anything but a one-sided affair and concluded that "looked at dispassionately, what is it but scientific slaughter on a gigantic

---

Omdurman, as well as attacked the shelling and destruction of the tomb of the Khalifa, who had established the Mahdist State. The article was widely reported in the press, such as in "At Omdurman," *Dundee Evening Telegraph*, January 4, 1899; and "Omdurman," *Nottingham Evening Post*, January 7, 1899, 4. It also elicited an angry rebuttal from *The Review of Reviews*, exemplified by articles such as "British Atrocities in the Soudan," *The Review of Reviews*, January 1899, 47-48; and "The Alleged Atrocities in the Soudan," *The Review of Reviews*, February 1899, 138.

[111] Biographical details from *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for Ernest Nathaniel Bennett (1865-1947), https://doi.org/10/1093/ref:odnb/58683.

[112] F. Maurice, "Omdurman," *The Nineteenth Century*, December 1898, 1048.

[113] Maurice, "Omdurman", 1054.

[114] Maurice, "Omdurman", 1054.

scale?"[115] A third article is more explicit still on what this would mean in a future European War, concluding that Omdurman has uncovered the effects of thirty years of relentless advancement in armaments.[116] Echoing the notion of those who perceived the uncertain effects of change, the author is clear that "the Lyddite shells, Maxim guns and repeating rifles of today may tomorrow be discarded for instruments still more diabolical in their power of destroying human life."[117] The article also highlighted the growing scale of European armies and the difficulties that this would impose on commanders trying to direct them in battle.[118] The article nonetheless concluded with the suggestion that disarmament, regardless of its appeal, could lead to an *increased* chance of war, because the sheer destructive power of modern weaponry, coupled with large armies, would act to discourage conflict, as other writers had thought earlier in the 1890s.

These three articles, and others, express a combination of horror and awe at the power of the armaments available to the British Army at Omdurman, but also admiration for the bravery of the Dervishes (undoubtedly tempered by the relief of a complete British victory), as in the quotation from an author calling himself B. C. S.:

> who with all their faults have shown themselves gallant and devoted warriors – trying vainly to get at the enemy, and succeeding only in swelling the heaps of the slain and wounded piled up by the Maxims, Lee-Metfords and other infernal machines which modern science has placed at the disposal of a modern army?[119]

An account in *The Daily News* set out the "magnificent spectacle" of the Dervish attack while also concluding that "it typified in every sense the final desperate struggle of barbarism against civilisation, of dogged unreasoning fanaticism against the massed

[115] B. C. S., "The Battle of Omdurman," *The Saturday Review*, September 17, 1898, 383.

[116] "The Next War in the Light of Omdurman," *The Saturday Review*, September 17, 1898, 369.

[117] "The Next War," 370.

[118] "The Next War," 370.

[119] "Battle of Omdurman," 383.

triumphs of modern science."[120] The hyperbole extends to a comparison of those Dervishes who died around the Khalifa's standard with the Spartans at Thermopylae, which must count as high praise indeed by the Classically educated elite of late nineteenth century Britain.[121]

The discourse is based firmly around a stark contrast between the barbarian Dervishes and their civilised, superior British (or British led opponents), but one correspondent – whose name, Rafiuddin Ahmad, indicates a different perspective to most writers – pointed to the need for Muslim people to re-arm along European lines, and that "I should not be surprised to hear very soon that the gunmakers of Birmingham were extremely busy with orders from different parts of the Mohammedan world."[122] Although Rafiuddin ends his article with praise for the British Empire and its rule over Muslim subjects, in the name of educational and cultural advance, he also made the point that to be effective in warfare – and thereby to influence international relations – re-armament with modern weapons was essential.

Yet, amongst the accounts of scientific slaughter, there remained a yearning for "real hand-to-hand fighting of the old sort."[123] This is evidenced by considerable attention being focused on the charge of the 21st Lancers, which occurred after the main battle at Omdurman.[124] This is despite – or perhaps because of – 40 of the British casualties (out of 105), including 19 (out of 25) deaths occurring directly because of the charge.[125] Nonetheless, it is described as dashing even in a letter that pointed out the huge scale of the scientific slaughter of the Dervishes.[126] An account in *The South Wales Daily News* is typical, described in detail by Colonel Martin, who led the regiment, recounting with

[120] "Omdurman: the Battle Described," *The Daily News*, September 23, 1898, 2.

[121] "The Omdurman Victory," 333.

[122] Rafiuddin, "Battle of Omdurman," 692.

[123] "The Progress of the World," *The Review of Reviews*, October 1898, 327.

[124] The regiment had been ordered to advance to Omdurman and charged what they thought were a few hundred Dervishes, whereas in fact they rode into and through a force estimated at 2,500. The young Lieutenant Winston Churchill took part in the charge.

[125] "The Progress of the World," 327.

[126] "Battle of Omdurman," 383.

evident pride that "hardly one of my officers or men got through the charge without a wound of some sort".[127] A later article on the Army Estimates notes that the popularity of the lancers and other light cavalry had been enhanced by memories of Omdurman.[128] What this shows is that there was an audience for heroism associated with 'fighting of the old sort: here was chivalry contrasted with scientific slaughter.

Conclusions

Four conclusions emerge from this chapter. Firstly, the future of war, sometimes based on papers and lectures from the military, was widely discussed in the periodicals, and gained increasing prominence in the 1890s. Secondly, and this has not been remarked upon in the current historiography, it was the Russo-Turkish War, and specifically the Battle of Plevna, which galvanised discussion on the way new weaponry had effected war. The impact of science on war, and especially of 'scientific war' became widely recognised after 1878, although the debate was divided by those who considered that war was still likely to be fought on the same lines as it had been previously, and a larger number of writers who saw it was being revolutionised. This leads onto the third point – the narrow assessments of the wars that had been fought earlier in the century transformed into a widespread dread of war in the 1890s. Writers extrapolated from the casualties incurred at Plevna, and the increasing sizes of European armies, and concluded that war would be uncertain, unpredictable and highly damaging. The possible consequences of rapid scientific change began to be discussed in widespread, persistent and apocalyptic terms. Although often short of detail, these articles indicate a recognition of the destabilising effect of progress, and that change was inevitable. Finally, this uncertainty reflected the very novelty of rapid change and a need to find ways of constructing the future, with little or no experience. In this light the vagueness of some of the articles is understandable – what emerges is fear of what the future would bring, in the face of uncontrollable and frightening progress. As Alison put it in the title of his work fearful of a future Great War, events 'cast their shadows before

[127] "Omdurman," *South Wales Daily News*, October 13, 1898, 5.

[128] "The Army Estimates," *The Saturday Review*, March 11, 1899, 293. The article also mentions an action at Dargai, in Afghanistan in 1897, citing it as another cavalry action which had increased interest from recruits.

them', even if the specific way in which modern weapons would lead to Armageddon was unclear.[129]

The year 1898 marked a watershed for Britain. Across the previous three decades British commentators had watched conflict in Europe and an intervention in a contest between the Great Powers on the Continent was thought unlikely. Omdurman was a colonial adventure, as it seemed the war in South Africa was when it started, but from 1899 onwards the realities of war under changed circumstances were to unfold in the Transvaal, and to promote vigorous debate on what it meant for a general European War. The next chapter begins with the South African War, and then moves through the remaining years through to 1914, when, as so many had feared two decades before, dread turned to grim reality.

[129] Alison, "Armed Europe," 755-764

Chapter Four Sleepwalking to the Precipice

This chapter explores how future of war was discussed in the British periodicals between 1899 and 1914. The early part of this period was dominated by fierce debate on the South African War and the future of the British Army. The debate sharpened the dichotomy between those commentators who saw future war being fundamentally different because of the introduction of 'modern' weapons, and those who saw it instead as merely modified. The War also narrowed the debate to tactics on the battlefield, and with the Russo-Japanese War, which began in 1904, largely swept away the more apocalyptic discussion on a Great War in Europe, muting the dread felt at such a prospect. Debate on the future of war after the Russo-Japanese War became even more particular and diffuse, with a focus on specific issues like the armament of the cavalry dominating the periodicals to the eve of the First World War.

As with Chapter Three, the research underpinning this chapter was centred on a search through digitised British periodicals. The starting point of this chapter is the beginning of the South African War, with its end point being the last articles published on the future of war as the July crisis unfolded in 1914. The period saw new periodical titles appearing, while others went out of publication, reflecting the vigorous and growing market for print journals discussed in Chapter One. Nonetheless, there was much continuity from the late nineteenth century, and many articles continued to draw on contemporary military lectures and papers. Equally, as was evident in the last chapter, the future of war usually meant what war would like be like if it was fought today or in the imminent future. This period saw some recognition that material change was accelerating, especially regarding the novelty of war in the air, but this chapter shows that more writers clung to a view that the essential foundations of war would remain the same. Debate also remained focused heavily on the tactical aspects of war, so that when strategy was discussed, there tended to be a focus on using comforting historical antecedents to demonstrate the continuity of essential strategic principles.

The period saw the crystallisation of Germany as Britain's likely enemy of the future, rather than France or Russia, which is also very evident in the broad shift in the fiction

of war in this period, as explored in Chapter Six. The period saw fierce antagonism between Britain and Germany, and the height of the Anglo-German naval race.[1] Accordingly, German military writers, more than that of any other nation, featured in translation in the British periodicals of this period, reflecting keen interest in their views; especially about what they thought about the performance of the Army in the South African War. Just as the war was covered by foreign military establishments, around 300 correspondents – mainly but not exclusively from Britain – reported from the war in South Africa, including Arthur Conan Doyle, Winston Churchill and Rudyard Kipling; the new innovations employed by correspondents included newsreel footage.[2]

The chapter begins by discussing the response to that war, before focusing on the Russo-Japanese War, and then the way both wars were, with hindsight, compared and contrasted. Finally, it covers the increasing diffusion of the debate on the future of war which became dominant in the periodicals in the eight or so years before the First World War. Two specific themes are covered in detail: debate on the armament of the cavalry, and the use of historical antecedents to predict the future, or implore Britain to be renewed amidst Social Darwinism rhetoric. Other topics were discussed, such as introducing conscription in Britain, and with the benefit of hindsight there is much in these later developments which echoes the title of Christopher Clarke's study of events leading up to the First World War, *The Sleepwalkers*.[3] The focused debate on the potentially ruinous nature of a European War, so evident in the late 1880s and 1890s, and the forensic evaluation of the wars in South Africa and Manchuria, increasingly fade into disjointed and parochial discussion, until the precipice of 1914 is reached.

Before beginning the chapter properly, it is necessary to discuss the work of the Polish industrialist Jean de Bloch, who is one of the subjects of the final chapter of this thesis.

---

[1] Rapid advances in naval technology dominated the period. In 1906 Britain launched the revolutionary capital ship HMS *Dreadnought,* leading to renewed competition globally, but no more fierce than between Britain and Germany. By 1914, only eight years later, Britain had 28 capital ships and Germany 18, which had grown larger and more powerfully armed with every successive design.

[2] Mitchel P. Roth, *Historical Dictionary of War Journalism* (London: Greenwood Press, 1997), 33.

[3] Christopher Clarke, *The Sleepwalkers: How Europe Went to War in 1914* (London: Penguin Books, 2013 [First Published 2012]).

Bloch published his six volume work in Paris in 1898, followed by an English language summary (the sixth and final volume of the full work) in 1899, *Is War Now Impossible?*[4] Bloch's work was much discussed in the periodicals, particularly as it was published in English on the eve of the war in South Africa. As the subject of Chapter Seven, his work is not discussed here in detail, but by way of context, Bloch developed an approach towards predicting future war which contemporaries saw as ground-breaking. For example, G. Gale Thomas, who was an admirer of Bloch's work, concluded that it was "the declaration of a scientist announcing the discovery of an existing, yet hitherto unrecognised, law."[5] In it, he analysed the impact of technological and economic change on warfare, and concluded that a future European war would lead to stalemate on the battlefield and the subsequent collapse of nation states unable to feed their populations or continue to pay for the war. His reasoning was, firstly, that technology had come to favour the defender, such that the longer range of armaments and growing size of national armies would lead to deadlock on the battlefield. Secondly, he concluded that the inter-related nature of the contemporary economic system would lead to an inability to finance a lengthy war. What set Bloch apart was less his conclusions – he was after all not alone in predicting disaster should a European War be fought in the 1890s – than his method and the detailed work which underpinned his conclusions, which made his work stand out from his contemporaries.

Bloch's predictions were largely to be proven correct in the First World War, as the Western Front solidified into trench deadlock by the end of 1914, where it would remain until 1918. One strand of largely discredited historiography holds that this was due to the inability of the generals on all sides to adjust to new conditions, through

---

[4] J. S. Bloch, *Is War Now Impossible? Being an Abridgement of "War of the Future in its Technical, Economic and Political Relations"* (London: Grant Richards, 1899). In Jean de Bloch, "The Wars of the Future," *The Contemporary Review,* September 1901, 305, he gives the original title of the sixth volume as *Summing up the Mechanism of War and its Working. The Case for an against the possibility of settling peaceably by means of an International Tribunal the Disputes that crop up between European States.*

[5] G. G. Thomas "The Bloch Museum of Peace and War," *Chambers Journal* LXXX (1903): 258, quoted in Michael Welch, "The Centenary of the British Publication of Jean de Bloch's Is War Now Impossible (1899-1999)," *War in History* 7 (2000): 275. The complete *Future of War* was an immense work in its full form, running to 3,084 pages; Bloch, "The Wars of the Future," 1, specifically mentions the scale of his analysis. Even in the shorter *Is War Now Impossible?*, the contents pages of maps and tables runs to four pages.

conservatism and a fixation with outmoded methods of waging warfare.[6] Dan Todman, Gary Sheffield and other historians do, indeed, point towards conservatism from some generals impeding learning how to fight in the War, while recognising that the speed of technological change had transformed the battlefield and the strategy needed to overcome the defence. As Bloch had predicted in 1898, the introduction of long range rifles, machine guns and rapid firing artillery, made it possible for small numbers of defenders to use entrenchments and cover to inflict devastating losses on attackers. At the same time, defenders could rapidly move reserves into position using railways, while attackers had difficulty controlling their troops at a time before portable radios were available. Those who had feared the prospect of a general European War in the 1880s and 1890s had been right to be afraid, even though their doubts had been vague. The South African and Russo-Japanese Wars demonstrated the challenges attackers faced with modern rifles, machine guns and artillery, leading to much debate, although as this chapter demonstrates, it focused almost exclusively on tactics on the battlefield, and not its effect on a coalition war in Europe.

War in South Africa

The South African War began in the same year that Bloch's abridged *War of the Future* was published in Britain, a little over twelve months after the devastating firepower of modern weapons had been turned on the Mahdi's armies at Omdurman. With campaigns such as that of the Soudan, and colonial conflicts fought throughout the nineteenth century, the British Government, Army and public opinion expected a swift victory over the Boers when the South African War began.[7] Instead, what followed was

[6] Terraine was one of the first historians to conclude that it was the state of contemporary military technology which led inevitably to the dominance of the defensive, see for example, John Terraine, *The Smoke and the Fire: Myths and Anti-myths of War 1861-1945* (London: Sidgwick & Jackson, 1980). For examples of more recent writing on the subject, see Dan Todman, *The Great War: Myth and Memory*, (London: Continuum International, 2007) and Gary Sheffield, *Forgotten Victory, The First World War: Myths and Realities* (London: Headline Books, 2002).

[7] The War is generally considered to have three phases. The first, from October to December 1899, saw the Boer republics take the offensive, lay siege to several towns and repulse the British. The second saw huge numbers of British reinforcements arrive, leading to Boer reverses between January to September 1900. Finally, as victory seemed assured, the Boers adopted guerrilla war tactics until their eventual defeat in May 1902.

a prolonged, expensive and destructive conflict against an enemy armed with modern rifles and artillery, and capable of using them to deadly effect. As Pakenham says, "it proved to be the longest, the costliest, the bloodiest and the most humiliating war for Britain between 1815 and 1914."[8] It also provoked intense soul searching amongst contemporary writers as to Britain's place in the world, its ability to fight a war and the quality of the recruits available to it once conflict began.[9] Needless to say, it also provoked an outpouring of interest in how future war would be fought.

In the circumstances of the shocking defeats in the first few months of the war, it is not surprising to find that the British periodicals contain a huge volume of articles dedicated to the war, with many expressing criticism of its conduct.[10] This was not generally directed at the rank and file of the Army, who were typically described as brave and committed to the fight, but to poor leadership and preparation for the War. The conflict led to a widespread desire to find reasons – or scapegoats – and this included a forensic examination of the way 'modern war' or 'Boer fighting' was conducted. As a result writers discussed the way in which rifles strengthened the defence, the importance of entrenchments, the difficulties of executing command across a dispersed battlefield, the need for greater individual initiative amongst soldiers, and above all the coming of 'science' to dominate the practice of warfare. Chapter Three demonstrated the increasing emphasis on 'scientific warfare' in the last decades of the nineteenth century, although the discussion during the South African War was on its *effects* rather than of its *potential* to change warfare. In other words, 'scientific warfare' was seen to have come of age.

This chapter has organised writing on the South African War and its meaning for the future of war into three topics which were debated at the time. The first was around the

[8] Thomas Pakenham, *The Boer War* (London: Abacus, 1992 [First Published 1979]), xv.

[9] There are numerous studies on the reaction of Britain to the war and the concerns it raised. For example, see Brad Beaven, *Leisure, Citizenship and Working Class Men in Britain 1850-1945* (Manchester: Manchester University Press, 2005), and Steve Attridge, *Nationalism, Imperialism and Identity in Late Victorian Culture, Civil and Military Worlds* (Basingstoke: Palgrave Macmillan, 2003).

[10] Eleven different periodicals contain at least one article on the South African War and its meaning for the future of war.

impact of the rifle on war, including the increased use of entrenchments. The second was the recognition that troops needed to show greater initiative to cope with the changed circumstances of war. The third was a more strategic discussion on the effectiveness of Britain's defences, arising from the lessons of the war. Beginning with the first, a number of writers in the periodicals were quick to point out the part modern weapons had played in the early British reverses of the War. A good example is F. C. Ormsby-Johnson, who wrote in *The New Century Review* in June 1900, nine months after it had begun:

> the South African campaign has lasted long enough to clearly demonstrate the fact that the checks, disasters, investments and ambuscades initiated and carried out by the Boers are the results of a scientific study of the long-range rifle and artillery and the quick firers….more particularly in the defensive line of battle.[11]

As the title of his article, 'The Loose Order of Battle', suggests, Ormsby-Johnson advocated the necessity of loose order formations to avoid annihilation during an attack, and contended that frontal attacks could never be successful against an unshaken defence.[12] He also considered that while infantry had gained immensely in defence through the adoption of improved rifles, cavalry had lost much of its effectiveness, and that in general warfare now favoured the defensive.[13] The article is hard headed, but is not unusual in its honest – and even scathing – treatment of British training and tactics.[14] Ormsby-Johnson makes a very pointed use of the term 'scientific' and implied that it was the British Army which had failed in its duty to properly evaluate the changes brought about by 'modern' firearms.

---

[11] F. C. Ormsby-Johnson, "The Loose Order of Battle," *The New Century Review*, June 1900, 420.

[12] Ormsby-Johnson, "Loose Order," 425.

[13] Ormsby-Johnson, "Loose Order," 430.

[14] Britain entered the South African War using the tactics used by all of the Continental armies, modelled on those of the Franco-German War, although some of the British Generals did adopt loose order from the start of the war having seen the power of magazine rifle fire in colonial conflicts, including General French, later to be commander of the British Expeditionary Force (BEF) in 1914. For an extensive description of some of the early engagements and the tactics used by the British Army, see Pakenham, "Boer War," 125-141.

Lonsdale Hale, who also wrote in the military *RUSI Journal* (see Chapter Five), also identified the main reason for British reverses to have been "the influence of that fatal mistake……the undervaluing of the power of modern rifle fire."[15] The main thrust of his article was that peace-time training had failed in the face of the reality of war, something also mentioned by Ormsby-Johnson.[16] Hale regarded success in previous colonial conflicts as having worked against the development of effective training, as well as criticising peacetime manœuvres on Salisbury Plain as being laughably unrealistic.[17] Hale also criticised tactics used by other European nations, suggesting that it was the very adoption of Continental tactics which ran "the risk of annihilation in the first few days of a campaign."[18] Hale also criticised the belief that force of will would be enough to carry an attack:

> There has always existed an insane idea that the rank and file must have unshaken belief in their power of closing on the enemy, and that to do so was an easy task. Of course, this was only practicable by the non-recognition of the power of the defenders' fire, so the training grounds have been fools' paradises indeed for our army at home; so many things it there was led to believe possible, it has now found impossible. [19]

This statement explicitly attacks the attitudes underpinning what historians Van Evera and Synder termed 'the cult of the offensive', described at length in Chapter One, which they consider was the mistaken notion that solutions based on morale could overcome the technological barriers produced by modern firearms.[20] Hale is clear that the contemporary belief that improved rifles favoured the attack had been shown to be erroneous in South Africa, and that a belief in 'moral' fervour or parade ground

[15] Lonsdale Hale, "Our Peace Training for War. Guilty or Not Guilty," *The Nineteenth Century*, February 1900, 237.

[16] Hale, "Peace Training," 237.

[17] Hale, "Peace Training," 237.

[18] Hale, "Peace Training," 237.

[19] Hale, "Peace Training," 237.

[20] See Stephen Van Evera, "The Cult of the Offensive and the Origins of the First World War," *International Security* 9 (1984): 58-107; and Jack Snyder, "Civil-Military Relations and the Cult of the Offensive," *International Security* 9 (1984): 108-146

rehearsal simply led to disaster. What these articles demonstrate is the opposite of the notion of 'the cult of the offensive', with commentators instead recognising the challenge of modern firepower and suggesting that rational answers were required to surmount the problem of a greatly strengthened defence.

Others echoed the points made by Ormsby-Johnson and Hale, as shown by an article which appeared in *The Review of Reviews* with the clear title: 'The Conduct of the War: Severe Criticism'.[21] As with many such articles in that publication, it reviewed work from other periodicals, which in this case criticised the use of obsolescent drill and frontal attacks which were doomed to fail in the face of rifle fire, regardless of the bravery of the attacking soldiers.[22] Several articles are referenced in this piece, but what united the writers – who came from both civil and military backgrounds - was a clear critique of British tactics in the face of the changed circumstances of war. A particularly excoriating analysis of the South African War was written by the already famous Arthur Conan Doyle in October 1900.[23] The article – although not identified as such – is the last chapter of his book *The Great Boer War*.[24] He launched an attack on the British Army with the assertion that the Boers had demonstrated that "the advantage of the defence over the attack, and of the stationary force against the one that has to move, [which is] enormous".[25]

One of Doyle's conclusions was that the changed capabilities of modern warfare meant that "every brave man with a rifle is a useful soldier."[26] He argued that a citizen army – akin to that of the Boers – could defend Britain from invasion with ease, undermining what he saw as the irrational fear of invasion from overseas, so long as such a trained

[21] "The Conduct of the War: Severe Criticism," *The Review of Reviews*, May 1900, 453-454.

[22] "Conduct of the War," 453.

[23] A. Conan Doyle, "Some Military Lessons of the War," *The Cornhill Magazine*, October 1900, 433-446.

[24] A. Conan Doyle, "The Military Lessons of the War: A Rejoinder," *The Cornhill Magazine*, January 1901, 43. Doyle also wrote *The War in South Africa: Its Cause and Conduct* in 1902; he was an enthusiastic supporter of the British war effort in South Africa but critical of its conduct, biographical details from *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for Arthur Conan Doyle (1859-1930), https://doi.org/10/1093/ref:odnb/32887.

[25] Doyle, "Some Military Lessons," 434.

[26] Doyle, "Some Military Lessons," 433.

force could be assembled. Even more remarkably, with hindsight, Doyle went on to conclude that "[the presence of balloons] will become more essential as the trench and the hidden gun become universal in the battles of the future."[27] Essentially Doyle is suggesting – albeit in a brief phrase - the importance of indirect fire, which is seen by military historians as the key tactical development in the First World War – and the centre of the Revolution in Military Affairs.[28] Doyle is putting forward a transformational view of future warfare, as opposed to those who saw only gradual change in its conduct, a dichotomy which had already emerged in previous decades.

Many of Doyle's arguments were paralleled by Thring, writing a month later in *The Nineteenth Century*.[29] Like so many writers before him, Thring singled out the significance of the Battle of Plevna and the Russo-Turkish War in 1878, highlighted in Chapter Three, and stated that: "unfortunately the training of our officers in military tactics has been directed rather to the study of the Franco-German War than to that of the Russo-Turkish campaign."[30] He identified the impact of improved magazine rifles, smokeless powder and quick firing artillery to war in South Africa, and also attacked, like Hale, the Army's adherence to outmoded drill ill-suited to facing magazine rifle fire. The inevitable consequence of improved rifle fire, the increased adoption of entrenchment, is also mentioned in several articles in the periodicals. Doyle, in his lengthy polemic, referred to the need for every infantry soldier to be ready to dig trenches.[31] Like Hale, he was particularly scathing of pre-war manoeuvres, noting that in the 1898 exercise on Salisbury Plain he had seen men standing and firing, which proved suicidal in South Africa.[32] A similar view was expressed by a French writer

[27] Doyle, "Some Military Lessons," 442.

[28] Jonathan Bailey, "The First World War and the Birth of Modern Warfare." In *The Dynamics of Military Revolution 1300-2050*, edited by Knox Macgregor and Murray Williamson, 132-153 (Cambridge: Cambridge University Press, 2001).

[29] Thring, "Lessons of the War," *The Nineteenth Century*, November 1900, 695-701.

[30] Thring, "Lessons," 696.

[31] Doyle, "Some Military Lessons," 436.

[32] Doyle, "Some Military Lessons," 436. Although accurate in terms of what was to come in the First World War, Doyle's suggestion that a 'portable bullet-proof shield' could provide troops with cover proved inaccurate, at least until the coming of the tank.

reported in *The Review of Reviews* in 1902, whose article concluded that henceforth "shelter and adherence to the soil are necessary conditions."[33]

Another cause identified for the stalemate in the First World War was the inability of commanders to control troops on the extended battlefield created by longer range firearms, as they lacked a means to direct their soldiers before the availability of portable radios.[34] This was clearly recognised by writers early in the South African War, such as Hale who, in another article, made a perceptive point about the scale of the battlefield reducing the ability of commanders to influence events, such that "the supreme leader [of the army] has been dethroned from his position as an autocrat whose will suffices and is law."[35] He pointed out that criticism of the British Army was valid, but had to take account of the way new rifles and artillery had affected the battlefield. The French writer quoted in the *Review of Reviews* in 1902 made a similar point, referring to the fact that "commanders have little control over troops once seriously engaged."[36]

What is clear from this material is that contemporaries writing in the periodicals fully grasped the importance of rifles in transforming warfare, just as Plevna had been seen as a turning point in 1878. Even those writers who did not put these changes centre stage, as in a piece for the *National Review* in August 1900, still noted the importance of long range rifle fire.[37] All of the writers mentioned above were publishing articles in 1900 (excluding the unnamed French writer in *The Review of Reviews*), as the War was going on, and present a hard-headed recognition that warfare had been changed by the introduction of new weapons. In fact, the parallels with articles published during and after the Russo-Turkish War is striking, and it is evident that writers were aware of the contributing factors which would lead to stalemate on the Western Front in the First World War, although their focus was on tactics on the battlefield and not what the

[33] "Last Lessons of the War," *The Review of Reviews*, July 1902, 67.

[34] Gary Sheffield and Dan Todman, eds., *Command and Control on the Western Front: The British Army's Experience 1914-18* (Stroud: Spellmount, 2007), 7.

[35] Lonsdale Hale, "The Staff Work in the War," *The Nineteenth Century*, September 1900, 363.

[36] "Last Lessons," 67.

[37] "Some Lessons of the Boer War," *The National Review*, August 1900, 1035.

increased power of the defensive would mean at the strategic level in a Great War in Europe.

Many thought that the solution to the problems created by the extended battlefield was for troops to show more intuition on the battlefield. Doyle, for example, concluded that modern warfare demanded intelligence and individuality.[38] Thring reserved his most scathing attacks reserved for the emphasis on drill and its effect on reducing individual initiative.[39] Similarly, an article in the *National Review*, grounded in practical solutions to the War, was critical of the lack of initiative shown by the cavalry, noting that the lack of education of its officers was particularly serious for an arm where intelligence was of overwhelming importance for it to perform its reconnaissance role.[40]

Much of the criticism that the British Army lacked initiative was centred on the issue of peacetime training, as with an article written by Arthur Griffiths more than a year after the end of the conflict, reporting on the War Inquiry. His article was primarily an attack on what he saw as Government parsimony against expanding the Army, and reported many of the matter-of-fact conclusions of the Inquiry. [41] This included the findings that marksmanship was imperfect, fire discipline too tightly controlled, and taking cover had not been stressed strongly enough.[42] He also reported that the Inquiry stated the need for training in smaller groups of soldiers – and of the need for imposing greater distances between units and individuals. Others adopted a more comprehensive view of the failures of British training. Perry, in 1901, wrote what amounted to a paean to German intellectual efficiency in an article in *The Nineteenth Century*.[43] He wrote that "the innate rottenness of the British Army, its deficiency in that intellectual light and learning which is at once the most refined and the most awe-inspiring feature of modern

[38] Doyle, "Some Military Lessons," 455.

[39] Thring, "Lessons," 696.

[40] "Some Lessons of the Boer War," 1030.

[41] Arthur Griffiths, "The Future of the Army," *The Fortnightly Review*, October 1903, 627-637.

[42] Griffiths, "Future," 635.

[43] Charles Copland Perry, "Our Undisciplined Brains – the War Test," *The Nineteenth Century*, December 1901, 904.

warfare."[44] He was critical of the amateurism of British soldiering, including a broader cultural contrast between its amateur sportsmen with German professions. Although suffused with a discussion of 'races', in line with much of contemporary thinking, he was clear that "no modern army can hope to be efficient which is not based on intelligence as well as the pride of a people."[45] Initiative was required of soldiers to operate across extended battlefields, and solutions relying upon willpower alone were not sufficient to ensure victory.

A similar view can be seen in an article by Robert Sturdee, written a year later, which was very anti-war in tone.[46] It supported the use of history as a tool for understanding previous conflicts, but was clear that "the present being so different from the past we cannot now claim for war the services she rendered then…in the past progress was through war, in the future progress will be through peace."[47] Sturdee viewed the present age as one of mind rather than physical prowess, and that in an age of standing armies the benefits of civic duty conferred by war in ancient times was no longer possible.[48] Once more, intelligence rather than strength or obedience, was emphasised. Sturdee remained, however, nostalgic for the past and the article comprises a lengthy set of examples from history, concluding that "in the bygone days there was glory of war in personal prowess, but now there remains only the ignominy of it in the unseen influence of the Stock Exchange."[49] Sturdee harked back to the ancient or chivalric past, regretting the shift to a more impersonal form of warfare, and suggested that the contemporary armaments race would lead to Armageddon, thereby echoing the apocalyptic language of many of the articles of the 1890s. His assessment, however, was rare in the era of the South African War.

[44] Perry, "Undisciplined Brains," 897.

[45] Perry, "Undisciplined Brains," 899.

[46] Robert Sturdee, "The Teaching of History on War," *Westminster Review*, August 1902, 124-134.

[47] Sturdee, "Teaching of History," 124.

[48] Sturdee, "Teaching of History," 125.

[49] Sturdee, "Teaching of History," 134.

Recognition of the slaughter at Plevna had led to much speculation over a future European War, much of which was highly pessimistic, as discussed in Chapter Three. With the South African War, a similar recognition was evident, but the focus was generally more parochial, with only a few exceptions, such as Sturdee's article. As the conflict directly involved Britain, the emphasis of most writers was on ways to improve the Army's performance or to manage the challenges of modern weapons; the focus had become narrower and more tactical. The tone had also become very self-critical and filled with doubt, even when defending the nation against German criticism, as shown in an article published two years after the conclusion of the war in *The Monthly Review*, covering the German Staff's report on the South African War.[50] Given the trauma that the war had generated in Britain, and Germany's place as the main rival for the nation, the article is charged and has a nationalistic, defensive tone. Whenever the German report was positive towards the Army the article was supportive, such as when British behaviour had been considered chivalrous.[51] Elsewhere, the article was critical, such as when the German report berated the performance of specific generals or that of the Army as a whole in particular engagements with the Boers. The anonymous writer of the review concluded that Britain was:

> not a military nation; we are amateurs. With every qualification for soldiering, our men will have none of it till the supreme moment comes, and then they must learn in action the more mechanical part of the lessons which the professional has taught himself at leisure. The consolation is that we are so much the safer from the hideous national disease of militarism; and that we preserve an open mind to receive the instruction of circumstance. If we may judge from the comments of the German Staff professionalism, too has its own dangers: science is a broke reed if its inductions are unsound….[if they] bend facts till they fit the theories of the lecture-room.[52]

[50] "The German Staff on the Boer War," *The Monthly Review*, April 1904, 1-10.

[51] "German Staff," 2.

[52] "German staff," 10.

The author stands against what he perceived to be German militarism and paints a picture of their Staff being hidebound to theory. He was criticising a perceived reliance on theory as opposed to practical lessons of the battlefield, although a nationalistic stance undoubtedly coloured his judgement.

Taken as a whole, the debate in the periodicals on the South African War was for the great part hard-headed, unafraid to criticise the British Army, and focused on the way new technology has changed warfare. A considerable number of articles contended that modern rifles had radically changed the conditions of warfare; and that there was a need for troops to show greater initiative, to take cover and entrench. To a modern reader many of the tactical features of the First World War are clearly signposted in the descriptions of the South African War. Perhaps no stronger testament to the incisiveness of writing in the face of war with the Boers is the report in the *Review of Reviews* from the 1902 French article.[53] It is worth quoting the following paragraph in full, which presents a powerful description of the tactical realities of the First World War on the Western Front:

> Infantry must in future fight lying down, and at short distances can only approach in a creeping position. Officers must be dressed like their men, and showy uniforms are out of the question. Invisibility is a new factor. Shelter and adherence to the soil are necessary conditions. The duration of battles will lead to exhaustion and exclude pursuit Commanders have little control over troops once seriously engaged.[54]

War in Manchuria

The Russo-Japanese War of 1904-5, fought in Manchuria, which broke out two years after the end of the South African War, is seen by historians as the conflict which the European military establishments used as their intellectual benchmark for thinking

[53] "Last Lessons," 67.

[54] "Last Lessons," 67.

about war until 1914.[55] Unlike the South African War, which many European commentators considered unusual and relevant only for demonstrating the shortcomings of the British Army, this war was the first significant conflict involving two major powers since the Russo-Turkish War of 1878. It was widely reported in Britain, with discussions on many of the same themes on the future of war raised during the South African War, which was also re-evaluated in the light of the latter war. As shall be seen, many observers thought that the latter conflict had overturned, or at least significantly modified, the lessons of the South African War; while others saw parallels. For the British periodicals at least, the earlier conflict maintained a particular fascination and relevance, and was never far from discussion about the war in Manchuria.

An example of clear thinking about the war in Manchuria and its relevance to the future may be found in the *Review of Reviews*, which summarised an article by Thomas Milliard from *Scribner's Magazine*. The article repeated many of the conclusions on future war reached during the South African War, such as commanders having to operate far from the battlefront, and of magazine rifles greatly extending and attenuating battlefields.[56] It went further, however, and this passage manages to convey the impression of both continuity and change in war:

> The present war, he says, is a far better test of the effect of modern weapons than any that has yet been waged. Strategy - the art of manoeuvring an army within the theatre of operations so as to increase the probability of and advantages to be anticipated from victory, while lessening the disadvantages of defeat-remains

[55] Michael Howard, "Men Against Fire: Expectation of War in 1914," *International Security* 9 (1984), 56. The Russo-Japanese War came about through Russian ambitions to increase its influence in Manchuria and Korea, which brought it into conflict with Japan, which had won a victory over China in 1894-95 and established informal control over the region (it was to take Korea as a colony in 1910). Japan attacked the Russian fleet at Port Arthur without warning in February 1904, before using its army to inflict a series of defeats on Russia in Manchuria, culminating in the capture of Port Arthur, Russia's most important naval base in the region, following a long siege, in January 1905. Russia sent its Baltic Fleet around the world to engage the Japanese, only to see it annihilated at the Battle of Tsushima, leading eventually to a peace treaty being signed in September 1905. Russia was humiliated and the defeat contributed to the Revolution of 1905, which shook the State to its core. Margaret Macmillan, *The War That Ended Peace: How Europe Abandoned Peace for the First World War* (London: Profile Books, 2014), "War That Ended Peace," 160-163.

[56] "The War of the Future," *The Review of Reviews*, January 1905, 46.

> much the same as in Hannibal's days. Tactics, however - the art or handling and directing the fighting of troops on the battlefield - are practically revolutionised.[57]

This article emphasised tactical change, like so many on the South African War, while holding that strategy remained unchanged. There was little challenge to the lessons of the former conflict, with the article instead presenting a view that they had been deepened and broadened. An article published in the same month, in *The Quarterly Review*, took a different view and used the war in Manchuria to challenge the conclusions of the South African War, stating that "the great campaign in the far East comes as a timely reminder that all knowledge of the art of war was not to be learnt on the illimitable veldt."[58] There is a sense of retreat in the assertion that "certain of the lessons in military tactics provided by the Boers received undue prominence in the text books and unofficial writings which were published during or after the war."[59] This criticism was founded on the adoption by the British Army of 'Boer tactics' - spreading troops widely across the field and seeking cover, with the anonymous author considering instead that the German theories of infantry attack had been vindicated by the Japanese, which consisted of wave after wave of attacking soldiers advancing, followed by fire engagement, until the Russian defenders were overwhelmed.[60] The author concluded that both conflicts had reinforced the need for initiative amongst individual soldiers, but was convinced that decisive action remained possible on the battlefield.

Decisive action was certainly something considered possible in *The German Official History of the War in South Africa,* the second volume of which was translated into English in 1906, after the Russo-Japanese War had ended. Two articles responding to this official history, published in that year, are suffused with wounded national pride in their defence of the British Army. The article in *The Speaker* reported the German view

[57] "War of the Future," 46.

[58] "The War in the Far East," *The Quarterly Review*, January 1905, 280.

[59] "War in the Far East," 280.

[60] "War in the Far East," 304.

that British attacks in South Africa had been insufficiently determined, which had caused the war to drag on, and that frontal attacks, although bloody, were necessary to ensure victory. [61] The author was critical of the German view and thought that an irregular army such as that fielded by the Boers would always require attacks in the flank or rear. Walter James, in his piece in *The Bookmen*, made the same point and argued that German performance in Manchuria or in manoeuvres would result in heavy casualties through adhering to "old methods."[62] The author of the article in *The Speaker* went further and attacked the German critics for having come to regard war as something wholly technical and mechanical.[63] Both articles are also, with hindsight, correct in the assertion that 'Boer tactics' would come to dominate tactics in the First World War, and echo the historiographical point that erroneous conclusions were often drawn from the Russo-Japanese War, simplifying the success of Japanese attackers into a general emphasis on decisive action.[64]

These were not the only articles of the time which showed an interest in the German Army, which was increasingly seen as the enemy Britain would find itself fighting against since the *Entente Cordiale* had been established in 1904. *The Review of Reviews,* for example, reported on a piece in the *Royal United Services Magazine* on the German manoeuvres of 1906.[65] In it, the German infantry were still reported as manoeuvring in dense formations, in the face of evidence from the South African *and* the Russo-Japanese Wars, which the reviewer considered to have shown that heavy casualties would result from such formations. The article stated that the German Army had not adapted to the conditions of recent warfare, before going further and portraying it as a "mechanical fighting force" which lacked the initiative necessary to be successful in war. What is evident here, and from the articles discussed above, was a widespread reaction against perceived German militarism, and too rigid attention to 'scientific warfare'.

---

[61] "Boer Tactics and German Critics," *The Speaker*, February 10, 1906, 460. The German view is also reported by Particeps, "The Boer War Through German Glasses," *Macmillan's Magazine*, April 1904, 460-469.

[62] Walter H James, "The German Official History of the War in South Africa," *The Bookman*, April 1906, 31.

[63] "Boer Tactics," 460.

[64] Howard, "Men Against Fire," 56.

[65] "A British View of German Manœuvres," *The Review of Reviews*, October 1906, 384.

Not all the views expressed in the periodicals were, however, so supportive of the military lessons of the South African War; as demonstrated in an article of September 1905 in *The Saturday Review*. This piece concluded that "both the Japanese and Russians have fought according to Continental and not English ideas, and he would be a bold man who will contend that any other methods but those used would have been equally successful."[66] That author thought – in this case in the same way as the German General Staff – that British fear of casualties had prevented a decisive outcome in the battles in South Africa. It also contained a statement bordering on a mystical and reflecting a belief in the pre-eminence of morale in combat: "what makes the Japanese army probably the most formidable in the world today is its spirit."[67] Such an attitude was also on show with the reports from Lieutenant-General Hamilton, Britain's military attaché to the Japanese in 1904-5, who was convinced that the strength of the Japanese lay in their primitive character which was of a "more natural, less complex, and less nervous type."[68] Hamilton was one of those who believed in the power of morale in combat, although he was not alone in viewing the Japanese in a favourable light, as a dedicated and 'virile' people.[69] These views demonstrate the contemporary views of Social Darwinism that the battle between nations was a matter of 'survival of the fittest'.[70]

These articles show a shift away from, or at least a questioning of, the hard-headed reports of the South African War, which had severely disoriented the British Army's view of its own ability to fight war in the future. The Russo-Japanese War, by apparently demonstrating the ability of the Japanese Army to press home attacks and achieve success (albeit it with high losses), provided the British Army with a more positive view, as Howard puts it, "after the miasmic doubts engendered by the Boer War."[71] The periodicals echoed this change, moving away from very precise and forensic discussion of war in South Africa to a more diverse and remote view of warfare in Manchuria

[66] "The Military Lessons of the War," *Saturday Review*, September 9, 1905, 384.

[67] "Military Lessons," 384.

[68] "Piercing the Veil in Manchuria," *The Academy*, November 25, 1905, 1224.

[69] See also "War in the Far East," 606.

[70] Paul Kennedy, *The Rise and Fall of the Great Powers* (London: Unwin Hyman, 1988), 196.

[71] Howard, 'Men Against Fire', 55.

between Russia and Japan. Although war correspondents and military attaches were present in Manchuria, it is inevitable that their reports sometimes feel more disengaged than those from South Africa, without the greater *frisson* of involvement as a combatant nation.

The period from 1900 to 1906, therefore, is one of retreat from the more general debate in the 1890s to more specific discussions. While the articles on the South African War are filled with astute observations on the tactical nature of contemporary conflict, they still avoid – or are not interested in – general considerations of a European War. By the time of the Russo-Japanese War the tactical conclusions from the South African War are already becoming watered down, making decisive war seem achievable. Nonetheless, the latter war also did not result in any wider discussion of how a future European War might be fought, and with what result. Also, for nationalistic reasons, many writers were reacting against 'scientific' warfare by linking it to perceived German mechanical adherence to parade ground rules and rigid manœuvres. A minority of writers admired the German way of war, but most were opposed to it, a position enhanced through their criticism of the British Army in South Africa**.**

Diffusion

There were to be no other major conflicts before the First World War; and although two Balkan Wars (1912 and 1913) were to be fought after 1905, neither of these conflicts were reported nearly as widely as the South African and Russo-Japanese Wars in the British periodicals. In the absence of a concrete conflict to discuss, writing on future war became less focused, and broke into separate debates around specific issues such as the role and armament of the cavalry. In these latter years it is as though the scale and consequences of a general conflagration could not be discussed as a whole: a future European war had become the proverbial elephant in the room, which may only be addressed by discussing particular features, such as the trunk or the tail. Also, the war which everyone had expected in the 1890s did not happen; there was no apocalypse and, human nature being what it is, the dangers of conflict receded from the periodicals. The last part of this chapter will focus on two of the most prominent themes that filled

the periodicals in the years to 1914 – debate on the armament of the cavalry and the use of historical allusion to reinforce conservative views on future war.

The extensive debate on the armament of the cavalry in the early twentieth century, which began with the South African War, continued until 1914. As discussed in Chapter One, the debate was about whether the cavalry should remain a mounted force primarily focused on shock action with lance and sword, or instead adopt the rifle as its primary weapon and become mounted infantry. This debate was taken up in the periodicals with enthusiasm, although of the thirteen articles cited here on the subject, however, it is worth noting that seven are from *The Saturday Review*, generally supporting the traditional use of the lance and sword, as opposed to the adoption of the rifle as the weapon of choice for the cavalry.

The British cavalry entered the South African War with an emphasis on traditional shock action, but found itself facing a Boer enemy which used its horses to move, and who fought on foot with rifles. This produced soul searching amongst observers and the cavalry themselves, with one side of the argument expressed succinctly by a contemporary writing at the time of the South African War, "the smallest troop of cavalry can no longer show itself in close formation…shock tactics with cavalry are dead."[72] The author favoured the use of horses for mobility and then to dismount and fight as infantry, as the Boers had done so successfully, but as will become clear below, the view that the war marked the end of shock tactics was not shared by all observers. Hindsight on the limited role of cavalry in the First World War makes it easy to see those who wanted to maintain the traditional role of cavalry as misguided conservatives, although historians such as Badsey and Philips have suggested that the British cavalry *did* modify their tactics in the light of experience in South Africa, reducing the scale of charges and delivering them in loose extended order to reduce casualties, as described in Chapter One. [73] Care must be taken, therefore, to see the arguments presented in the

[72] 'Last Lessons of the War', 67.

[73] Although supportive of the *arme blanche*, Younghusband acknowledged that the knee-to-knee charge was outdated; see G. J. Younghusband, "The Horseman of the Future," *The Monthly Review*, November 1902, 78.

periodicals within their contemporary context, with – as always – an inability to see the future.

Doyle was one commentator who believed that the British Army as a whole needed to change, but who reserved some of its fiercest criticism for the cavalry:

> Passing on to the cavalry, we come to the branch of the service which appears to me to be most in need of reform. In fact, the simplest and most effective reform would be one which should abolish it altogether, retaining the Household regiments for public functions. One absolutely certain lesson of this war is that there is – outside the artillery – only one weapon in the world, and that weapon is the magazine rifle. Lances, swords and revolvers only have one place - the museum. How many times was the lance or the sword fleshed in this war, and how many men did we lose in the attempts, and how many tons of useless metal have our overburdened horses carried about the country? But if these weapons are discarded, and we come down to the uniformity of the rifle, then of course we must teach the trooper to use his rifle on foot and dress him so that he can do so. So in an automatic and unavoidable way he becomes mounted infantry.[74]

Doyle clearly presents the argument for revolutionary change, suggesting that the old ways of war no longer had any relevance, and that the only solution for the cavalry was to transform their role and adopt the rifle as their primary armament.

Others held a more evolutionary position, such as the anonymous author of an article in *Blackwood's Edinburgh Magazine* in 1901. It was a lengthy discussion of all aspects of the cavalry, such as the weight of equipment carried, training and recruitment, as well as its armament. The author stated that "many people, many practical soldiers indeed, hold that the days of charging with the *arme blanche* in the face of modern firearms have gone forever." [75] Nonetheless, he concluded that there could still be opportunities for

[74] Doyle, "Some Military Lessons," 437.

[75] "The Future of Our Cavalry," *Blackwood's Edinburgh Magazine*, May 1901, 715-726.

charges, and noted that the morale effect of the *threat* of a charge had been of some importance in South Africa. The author argued that for reasons of weight only one melee weapon should be carried, and concluded that it should be the lance. Like Doyle, however, he saw the rifle as the primary armament of the cavalry.

A more extreme response to the idea of abandoning shock action may be found in the outpourings of a writer calling himself 'Grey Scout', who penned a series of short articles in 1903 for *The Saturday Review,* putting forth the position that the cavalry should be armed traditionally, and show elan and dash to close with their enemies.[76] At times the author veers towards the eccentric in his appeal to 'the cavalry spirit', but makes points on the need for greater initiative which echo others writing on warfare at the time. 'Grey Scout' can be found still expressing this view nine years later in *The Saturday Review*, continuing to advocate that cavalry act as the *arme blanche.*[77] Even he, nonetheless, stated that they should also be capable of dismounted action throughout his articles, although it is clear where his sentiments lay.

As a result of the War, Lord Roberts, who had commanded the British Army in South Africa, instituted reforms which placed the rifle as the primary weapon of the cavalry.[78] He also stripped the lance from those regiments which used it as their primary weapon, although all of them retained the sword. His actions lie closest to the moderate views of the author in *Blackwood's*, but there was a reaction against Roberts' reforms once he left the Army in 1904, with more traditional cavalry soldiers arguing for the primacy of the

[76] See Grey Scout, "The Future of Our Cavalry," *The Saturday Review*, March 21, 1903, 352; Grey Scout, "The Future of Our Cavalry - II, 446-447" *The Saturday Review*, April 11, 1903; Grey Scout, "The Future of Our Cavalry – IV Training," *The Saturday Review*, March 21, 1903, 291-292.

[77] Grey Scout, "Our Cavalry," *The Saturday Review*, October 12, 1912, 448-449.

[78] Lord Roberts was appointed as commander-in-chief of the British Army in South Africa after the reverses of 'the black week', and proved successful in defeating the Boers in the open field. Even when in the Army, as its Commander-in-Chief, he advocated compulsory military service and in 1905 became president of the National Rifle League. Around this time he wrote a forward for *The Invasion of 1910*, a novel discussed in Chapter Six, presenting a warning to Britain of German invasion. Biographical details from *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for Frederick Roberts, First Earl Roberts (1832-1914), https://doi.org/10/1093/ref:odnb/35768.

lance and sword.[79] A fascinating example of this debate can be found over the course of three issues of *The Monthly Review* in 1903-4, where two cavalry officers put forward their views at some length, both writing under pseudonyms. Firstly, 'Eques' argued vigorously against the withdrawal of the lance and the primacy given to the rifle, criticising Roberts on the grounds that "the preponderance of European military opinion [is] against him."[80] 'Eques' supported his argument by the selective use of evidence from military history and concluded that Roberts' reforms would soon be consigned to oblivion.[81]

Two months later, 'Cavalry' responded by supporting Roberts' reforms and stated that "the opportunities for the use of the *arme blanche* [are likely] to be rare."[82] On the contrary, he considered that the use of the rifle would enhance its capabilities in the future.[83] Finally, with even more rhetorical flourish, 'Eques' responded in April 1904 with statements firmly supporting the use of the lance and quoting the German retention of this weapon as justification of his position.[84] Another article in the same issue, discussing the report on the Boer War by the Historical Section of the German General Staff, pointed out that both of these writers use the same historical event, the charge at Klip Drift, outside Kimberley, "in which we believe both these distinguished soldiers took part [to] support his own argument."[85]

There was a more muted response to the issue of cavalry armament in the periodicals during the Russo-Japanese War, although as Chapter Five will show, there was more debate in the military journals, with a lot of criticism of the cavalry on both sides of the

[79] Stephen Badsey, "The Boer War (1899 – 1902) and British Cavalry Doctrine: A Re-Evaluation", *Journal of Military History*, 71, 2007, 78.

[80] Eques, "The Cavalry and its Principal Arm." The Monthly Review. December 1903, 52.

[81] Eques, "The Cavalry," 78.

[82] Cavalry, "The Cavalry and its Principal Arm," *The Monthly Review*, February 1904, 80.

[83] Cavalry, "The Cavalry," 79.

[84] Eques, "The Cavalry and its Principal Arm," *The Monthly Review*, April 1904, 52. It should be noted, however, that the British Army later considered that 'before the war, the German cavalry were taught to rely more on fire action…than the *arme blanche*,' from James Bleach, ed., *The German Army Handbook of 1918*, (Barnsley: Frontline Books, 2008), 63.

[85] 'German Staff', 9. G. J. DeGroot, *Blighty: British Society in the Era of the Great War*, (London: Longman, 1996), 23, described this action as a "short, insignificant but nonetheless dramatic charge."

conflict for their perceived lack of initiative and effectiveness.[86] Nonetheless, the debate did continue, as can be seen from reaction to the publication in English of a new edition of *Cavalry in Future Wars* by the leading German military writer Bernhardi, in 1906, which had a foreword written by the cavalryman Sir John French, later to be commander of the BEF in 1914.[87] It was reviewed in *The Athenaeum*, in an article which reported it as having decided that the analysis of the South African War to be false and that cavalry could conduct flank attacks and raids.[88] This optimistic view was not to prove possible in the First World War, especially on the crowded Western Front, although it was commonly thought at the time that cavalry would be of more importance in the future, owing to the need for strategic action in the face of battlefields extended because of longer range firearms.

In 1910, Erskine Childers, author of the famous novel *Riddle of the Sands,* which had been published nine years earlier, wrote *War and the Arme Blanche*, a ferocious attack on the traditional armament of the cavalry and their use of the charge. A piece in *The Saturday Review,* ever the defender of the traditional view, was highly critical of the book, with the author responding with invective to Childers' language and spelling, as well as using selective arguments to bolster the validity of the *arme blanche*.[89] A similar attack was made by the Military Correspondent of *The Times* - to which Childers himself responded with a letter where he labelled the *arme blanche* as prehistoric.[90] What is interesting about this debate is the use of selective facts on both sides, although Childers argued that the debate should be based on facts. He attacked the proponents of the *arme blanche* for always suggesting that the failure of cavalry to use the charge was due

[86] Although some debate did continue, as can be seen in a review of Hamilton's description of the Russo-Japanese War, where his views are described as being extreme because of his suggestion that they should fight dismounted. See "Piercing the Veil", p.1225.

[87] John French was a Lieutenant-General in the South African War, and was a traditionalist cavalryman opposed to the reforms of Roberts or later criticism of Childers. Biographical details from *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for Sir John French (1852-1925), https://doi.org/10/1093/ref:odnb/33272.

[88] "Cavalry in Future Wars," *The Athenaeum*, November 10, 1906, 574.

[89] "War and the Arme Blanche," *The Saturday Review*, May 28, 1910, 693-694. See also the later "German Influence on British Cavalry," *The Saturday Review*, October 21, 1911, 525. This article also considers Childers to be an amateur, which was a criticism often levelled at Bloch.

[90] "Cavalry and the Arme Blanche," *The Times*, May 17, 1910, 4.

to deficiencies in foreign cavalry, rather than recognising the innate redundancy of shock action. He applied this to the Russo-Japanese War, as had previous writers, where it is significant that so many excuses were found for the failures of cavalry.

This tendency to criticise foreign cavalry may also be seen in a rare article referencing the First Balkan War, in 1913, which focused on "the failure of the Bulgarians to render their victory complete in consequence of the inadequacy of their cavalry."[91] The piece also considered the South African War as being exceptional, and criticised the cavalry on both sides in the Russo-Japanese War for being insufficiently bold, in yet another example of trying to find excuses for the failure of the cavalry to act in their *arme blanche* role.[92] More interestingly, however, is the author's explicit mention of motor transport:

> The extensive employment of motor power as a means of traction, with its inevitable sequel, the growing scarcity of horses, has led a certain school of critics to the somewhat premature conclusion that the horse is destined to disappear from the scene, and that in its place will be substituted, with even greater efficiency, mechanical methods of locomotion as embodied in the automobile, the motor cycle, and the ordinary bicycle. The success achieved by the employment of these machines in set manoeuvres over a stipulated area where the roads are favourable and conditions generally ideal would seem to lend weight to the theory thus advanced. [93]

Although the author argued for the continued primacy of the horse, it is interesting to see even a comment on motor transport for military use.[94] Although there were a number of articles on this subject in the military journals, the concept of using motor transport in war appears in only two articles in the periodicals, penned by a common

[91] LL, "Cavalry in Modern Warfare," *The Academy*, January 25, 1913, 117-119.

[92] LL, "Cavalry," 118.

[93] LL, "Cavalry," 117.

[94] Assuming that the pseudonym LL indicates that it is the same author, the slightly later article by Lancelot Lawton, "A German View of the Turkish Defeat," *The Fortnightly Review*, May 1913, 975-982, makes a similar point.

author, compared to the vast swathes of ink expended on the argument over the armament of the cavalry.[95]

One article, written by John Percy in 1900, provides insight into the underlying social and cultural reasons for why so much was said about the cavalry. They had always been an elite arm and those who argued for its continued relevance exhibited defensiveness in the face of challenges from rifles, motorised transport and the 'scientific' conduct of war. This article was not concerned with the South African War, but instead discussed cavalry in the round, noting that the days of shock action were now rare, and that (using the familiar phrasing of the time) "science in its working holds the compass of war. Romance has given way to utility."[96] His thesis was one of the dominance of planning and that while dismounted cavalry had value, "buried are banners and battle-axe; no more for romance is war."[97] His explicit reference to the romance of war is evidence of what historians have seen as a need to cling on to a more human form of conflict, as Bond says: "although the motives were perhaps subconscious, such phenomena as the … *arme blanche* may now be seen as the last desperate effort to withstand the depersonalisation of war."[98]

Another theme in the periodicals of the twentieth century, most evident after 1905, was an increased emphasis on the use of historical examples when discussing the future of war, particularly in *The Fortnightly Review* (four out of seven articles cited come from that source), a publication which tended to include intellectual articles discussing contemporary matters.[99] While Doyle and others argued that modern warfare marked a break with the past, many saw parallels with former conflicts, and often used them to justify conservative positions. An early example is an article by Sibly from 1900, which

[95] Nikolas Gardner, "Command and Control in the "Great Retreat" of 1914: The Disintegration of the British Cavalry Division," *The Journal of Military History* 63, 1, (1999): 53. Gardener considers that that too much historiographical effort has been expended on the 'fire vs *arme blanche*' argument.

[96] John Percy, "Cavalry – Their Place in War," *The Idler*, July 1900, 252.

[97] Percy, "Cavalry," 259.

[98] Brian Bond, "Doctrine and Training in the British Cavalry", in *The Theory and Practice of War*, M. Howard ed. (Cassell, London, 1965): 120.

[99] Alvin Sullivan, *British Literary Magazines: The Victorian and Edwardian Age*, 1837-1913 (London: Greenwood Press, 1984), 131.

is interesting for the weight of historical allusions applied to the South African War.[100] The article itself was rather opaque and was not directly concerned with the way in which it had been fought (and was still being fought). Instead, comparisons were made with numerous historical events such as Napoleonic guerrilla warfare in Spain.[101] Similarly, Sibly compared the numbers of volunteer regiments raised for South Africa unfavourably with the number achieved for the American Revolutionary War.[102] Overall, he used history to frame the circumstances of the current War, and to present a comforting set of parallels. While such analogies might have had some relevance, they avoided the issue that the war in South Africa was different to those in the past due to the impact of new technology.

J. Ellis Barker's article in 1906 carries some of the apocalyptic character of many of the article of the 1890s, including the statement that for the nation "the eleventh hour has arrived."[103] Yet its character is very different to those earlier articles, as it is specifically concerned with the future of Britain rather than with Europe as a whole. Further, it is framed with a lengthy analysis of the rise and fall of previous maritime nations, from the Phoenicians to the Netherlands, with the view that "if we wish to understand the problems of Great Britain….we must enquire into the history of those states which at one time possessed commercial and maritime supremacy."[104] Barker's conclusion was that Britain had to regain its agricultural independence and turn away from reliance on foreign trade, as well as rekindling its warlike spirit. The article fits within the atmosphere of declinism which affected Britain at the time, and it is definitely not an examination of future war, instead looking back into a comforting past to find analogies to the present condition of the country.[105]

[100] N W Sibly, "Some Issues of the Transvaal War," *Westminster Review*, May 1900, 512-516.

[101] Sibly, "Some Issues," 515.

[102] Sibly, "Some Issues," 515.

[103] J. Ellis Barker, "The Future of Great Britain," *The Nineteenth Century*, November 1906, 704.

[104] Barker, "Great Britain," 690.

[105] For the sentiments of declinism at the time, see Samuel Hynes, *The Edwardian Turn of Mind* (London: Pimlico, 1991 [First Published 1968]), 42.

Blennerhassett, writing in 1908, took a similar view, attacking the notion of a peaceful nation and comparing the present unfavourably with the past, such that "[Wellington] certainly belonged to a generation of men as far removed from the mercenary spirit of the age as were the god-like warriors of the siege of Troy." [106] He considered that European War was not at an end, referencing the conflicts of the nineteenth century, and discussing previous historical exemplars such as Napoleon and Frederick the Great. In the eyes of Blennerhassett, the past was not only a guide to the future, but a better place. A. W. A. Pollock also used history to illuminate his thesis that military education required an assessment of history because "brains are indeed essential….and are more than ever in the present day, but personality is of almost equal importance."[107] The comment on personality is the stuff of moral decline in a time of Social Darwinist thinking, and Pollock considered that the current perceived malaise was due to failing to read classical sources because "now we read trashy novels and cheap magazines."[108] Barker was even more explicit, saying that "the law of survival of the fittest and strongest, which rules the whole animal and vegetable creation, applies with equal force to man and his political associations." [109] His solution was a return to antique belief, echoing Hamilton's writing on the Russo-Japanese War; a call for modern nations to return to a more atavistic and less city-bred past, or fail in warfare of the future; in complete contrast to the idea of science coming to dominate warfare. As well as Blennerhassett and Pollock, these views were echoed by Lawton in a piece from 1913, which praised the "staying power of spartan people like the Bulgarians and the Japanese, imbued though both of them were with an almost fanatical zeal."[110]

Two years later and Cecil Battine, who also wrote for the *RUSI Journal*, as discussed in Chapter Five, is to be found using historical allusions, albeit in a less extreme way, to support his point about the need to preserve the 'balance of power' in a debate on

[106] Rowland Blennerhassett, "Aspects of Strategy and Tactics," *The Fortnightly Review*, August 1908, 233.

[107] A. W. A. Pollock, "Military Education," *The Fortnightly Review*, February 1907, 341.

[108] Pollock, "Military Education," 344.

[109] Barker, "Future of Great Britain," 704.

[110] Lawton, "German View," 985.

Britain's responsibility to help France in a war.[111] As a final example, there is an article from 1911 in *The Academy*, which reviewed Beca's *A Study in the Development of Infantry Tactics.*[112] The author of the article considered the book interesting and welcomed its rich discussion of previous conflicts. The book advocated columnal assaults on the Napoleonic model and stated that the Russo-Japanese War had demonstrated the decisive effect of mass action, but the reviewer noted that the Beca was at odds with the views of most of the British officers who had fought in the South African War. The use of historical examples here, as elsewhere, provides a comforting framework against change, instead looking backwards to rely on unchanging principles of war.

Overall, therefore, the use of increased historical allusions can be seen as a conservative reaction to change. As with the debate on the cavalry, there is a reaction against the coming of 'scientific' warfare, with calls for the need for a more warlike spirit, coming from the countryside and not the city. Articles on the likely calamity that a European War would bring, which peaked in the early 1890s, were largely absent from this latter period. There were *some* articles which examined the balance of power, such as one written by J. L. Garvin in 1909, who stated that "the equilibrium of great armaments gives stability to peace."[113] Battine, mentioned above in relation to his article on France, also used the idea of the balance of power as a bulwark against war, noting that changes in the balance of power had driven Britain to closer engagement in European affairs, driven by factors such as the rise of the United States.[114]

It is worth discussing one final article, from no less an authority than Field Marshal Lord Roberts, who retired as Commander-in-Chief of the British Army in 1904 and published an article in *The Quarterly Review* in January 1905, during the Russo-Japanese War, giving his thoughts on 'The Army – As it Was and As It Is'. His aim was "to note the great changes which have taken place in the conditions under which war is carried on since those days [50 years earlier] and to point out the alterations in the training…which these

[111] Cecil Battine, "Our Duty to Our Neighbour: the Defence of France," *The Fortnightly Review,* June 1909, 1059.
[112] "Infantry Tactics," *The Academy*, April 29, 1911, 517.
[113] J. L. Garvin, "Imperial and Foreign Affairs," *The Fortnightly Review*, February 1909, 197.
[114] Battine, "Our Duty," 1060.

new conditions render imperatively necessary."[115] Roberts, who was to become intensely involved in the campaign for conscription in the face of the perceived German threat of invasion, was most concerned with delivering training to inculcate individuality into soldiers. As someone who had seen the need for change after the South African War, it is not surprising that he also stated that "no thought seems to have been given to the necessity for scientific preparation to meet the stern test of war."[116] Later in the article he repeated his point about the fundamental change that had come over war, "daily becoming more and more scientific, [with] a far higher level of individual intelligence demanded from both officers and men."[117] He contrasted the firearms which the Army used when his career began – still a modified version of the old Brown Bess musket used in the Napoleonic War – with contemporary rifled arms firing with smokeless powder, and emphasised how inaccurate the old arms were. As with many of the articles that came out of the South African War, he made incisive points about contemporary war, such as the redundancy of volley power and the dominance of fire over the bayonet; and the importance of command being passed down to lower ranking officers due to the dispersed nature of the battlefield. Yet, once again, Roberts did not extend his arguments to the impact of these changes on a European War, but focused on improving the performance of the British Army. This is not surprising, as he was concerned with making the army able to fight and win a war, rather than reaching more abstract conclusions about what would happen when the Great Powers decided to go to war.

The debates on the importance of 'scientific warfare' contrast with the use of historical exemplars to show the unchanging nature of strategy. Whether suggesting a need for Britain to be renewed, or looking to models from the past on which to base future foreign policy, there is a sense of conservatism on display. The same is true for those writers who sought to defend the use of the *arme blanche* by the cavalry. The excoriating soul-searching of the South African War has gone, replaced by a more abstract sense of retrenchment and unreality in the face of modern war.

---

[115] Frederick Roberts, "The Army – As It Was and As It Is," *The Nineteenth Century*, January 1905, 1.

[116] Roberts, "The Army," 2.

[117] Roberts, "The Army," 20.

Conclusions

The South African War focused interest on Britain, its army, and on the battlefield. The more discursive works on the potentially apocalyptic character of a Great War in Europe largely disappear from the periodicals. Even when discussing matters of the balance of power in the decade before the First World War, the attention is firmly on Britain and not Europe as a whole. History also became something of a comfort blanket, and there is a noticeable reaction against science and professionalism in many of the articles, bringing with them pessimism and fear for the future. The writers of the 1890s focused on the dangers of a European war, albeit with little more than formless dread, but the wars of 1899 to 1905 turned attention to matters of detail, while losing sight of the bigger picture. With hindsight, reports on the South African War are highly accurate in their portrayal of the tactics which would be adopted in the First World War, and anything but formless, but there is little to no discussion of what modern weapons would mean for a coalition war in Europe. The 'trees' were in focus, but the 'wood' had gone.

By the later part of the 1900s, however, even the debate on tactics had begun to dissipate with the end of commentary on the Russo-Japanese War. The attention on the armament of the cavalry reflected similar pieces in the military journals, and says much about contemporary military culture, but it is of very narrow focus. Because a 'Great War' had not happened, discussion of it disappeared from the periodicals, to be replaced with more specific debates. Fear of the future was shifted to Britain's role in the world and need for reinvigoration, and those articles which discussed matters of strategy tended to see it as unchanging; their emphasis was continuity and not change. Above all, a general European War, which was often seen to be imminent in the 1890s, had receded – until it happened.

Chapter Five The Military Response

The attitudes and expectations of the European military establishments before the First World War have been the subject of debate amongst historians. As Chapter One sets out, some have singled out the British Army for particular criticism of its social conservatism impeding reform, while others consider that it one of the best prepared armies for war in 1914. The previous three chapters have focused on writing in the periodicals about the future, and of war in particular in Chapters Three and Four. This chapter complements them by examining how the British military establishment interrogated the future of war in its own journals. There was certainly an outpouring of articles in these journals discussing the impact of new weapons on warfare, including lengthy debates on what Howard termed 'men versus fire' and the utility of the cavalry in 'modern' warfare. In the light of this wealth of material, this chapter continues the theme of examining *how* the future was interrogated by military writers and will show that what engaged them was the question of what war would be like in the immediate future. It will also demonstrate that while technical advances were scrutinised, conservatism dominated debate on their broader impact on warfare. When new technologies were discussed, such as aircraft, they were seen as augmenting current military practice, rather than having the potential to transform war. In fact, detailed technical descriptions of new advances acted to obscure the wider effect they might have on the practice of war.

The sources for this chapter have been largely constrained to two of the most significant British military journals of the period, to better focus on the pattern of change in discussion about the future war. Concentrating on these journals across the period of interest has made it possible to construct a consistent view of military thinking, paralleling the assessment of civilian journals across the same time frame. Foremost of the two is the *Journal of the Royal United Services Institution (RUSI Journal)*, the organ of Britain's most significant military and naval society. The Royal United Services Institution (RUSI) had already been established for 39 years in 1870, and remains active

today.[1] Every digitised edition of the *RUSI Journal* published between 1870 and 1914 has been inspected manually to identify articles dealing with the future of war, without the use of keyword searches. Over 110 articles were found using this method, with the majority coming later in the period. This is partly because, from 1870 to 1890, the *RUSI Journal* was published quarterly, before moving to monthly publication until the outbreak of War in August 1914, after which it was produced more sporadically. Nonetheless, even taking account of its increased frequency of publication, interest in the future of war grew much stronger from the 1890s onwards, as it did in the civilian periodicals. Aside from reviews or shorter pieces, most of its articles comprised written reports on lectures given to a panel of military and naval officers a few months beforehand, including the result of question and answer sessions which were usually held at their conclusion.

The scope of the *Journal* remained relatively consistent across the five decades under study. Articles (and the lectures from which they usually originated) came ordinarily from military and naval authors of varying levels of seniority, but were occasionally written by civilians. Most articles related to reports on contemporary or near contemporary campaigns waged by Britain or other (predominately European) nations; were historical examinations of previous campaigns, largely from British history; or were reviews of books. There were numerous translations of foreign articles, especially German, but also including French, Russian and Italian examples. By 1900 each individual edition contained sections at the back entitled Naval Notes, Military Notes, Naval and Military Calendar, Foreign Periodicals and Notes of Books. While this research has focused on military writing, a few articles on naval topics have been included where they relate to the theoretical analysis of future war. Although historians such as Travers have considered the Army to be profoundly anti-intellectual, by 1914 around a quarter of its regular officers were members of RUSI, which often published technically challenging articles, as shall be demonstrated below.[2] It promoted considerable debate about future tactics, especially after the South African War, and

[1] Since 2004 it has been named the Royal United Services Institute for Defence and Security Studies.

[2] Aimee Fox, *Learning to Fight: Military Innovation and Change in the British Army 1914-18* (Cambridge: Cambridge University Press 2018), 45.

contained many articles interested in motor transport and aviation from the 1890s onwards. It is noteworthy that in the opening address by Colonel James Lindsay, the new chair of RUSI, of a lecture in 1897, emphatically stated that military and naval science had been hitherto underrepresented, and called for it to be better recognised.[3]

This research has been counterpointed with a similarly intensive search through *The Cavalry Journal*, which was first published in 1906, financed primarily by officers serving in the British cavalry. Editorial staff provided their time for free and premises were rented by RUSI for a nominal amount. The *Cavalry Journal* is not digitised, so the research was conducted at the current RUSI Library, which holds an extensive collection of military journals and papers from the nineteenth and twentieth centuries. *The Cavalry Journal* was published quarterly from 1906 to the outbreak of War in 1914, when publication ceased until the conclusion of hostilities. The subjects and themes of many of the articles in the *Cavalry Journal* were similar to those in the *RUSI Journal*, although its tone is generally less intellectual.[4] Alongside articles on contemporary and historical cavalry campaigns and translations of foreign articles, there were Sporting Notes and articles on the more practical side of cavalry matters, such as riding schools.[5] The *Cavalry Journal* was something of a hybrid between the RUSI Journal and another contemporary publication, *The Royal Engineer Journal* which was the 'house' publication of that branch of the Army and resembled more of a newspaper than it does a journal, with regular entries on Births, Deaths and Marriages, Corps News and Notices.[6] Nonetheless, whatever the merits of the interminable debate on the cavalry and its armament between 1900 and 1914 - see Chapter Four for its treatment in the civilian

[3] Rosemary T. van Aradel and Don J. Vann, eds. *Victorian Periodicals and Victorian Society* (Toronto: University of Toronto, 1995), 68.

[4] The first edition sets out the purpose of the journal, which was to debate matters of interest to the British cavalry, and has its first article by the Inspector-General of Cavalry, then a Major-General; Robert Baden-Powell, "What Lies Before Us," *The Cavalry Journal*, January 1906, 2. Baden-Powell was one of the founders of the *Cavalry Journal,* from "Robert Baden-Powell," *Oxford Dictionary of National Biography,* https://doi.org/10.1093/ref: odnb/30520.

[5] There are a number of articles with subjects which, to a modern reader, seem anachronistic and indicative of the myth of the contemporary British cavalry, such as Major A. E. Wardrop, "Pig Sticking," *The Cavalry Journal*, April 1913, 221-226.

[6] For example see *The Royal Engineer Journal*, January 1902, No 362. This journal was not used as a source for this research due to its more parochial character.

periodicals - the fact that *The Cavalry Journal* was established in 1906 shows that the arm did show a level of intellectual engagement on military matters.[7]

The systematic evaluation of the *RUSI Journal* and *The Cavalry Journal* has been counterpointed by sampling a number of editions from the *Journal of the United Service Institute of India*, to add depth to the research. Established in 1872, it was very similar in character to the *RUSI Journal*, albeit with an emphasis on warfare in the Indian sub-continent. Like RUSI in the UK, the United Service Institute still operates in India. The journal was published quarterly throughout the period and three sample editions were assessed for this research, from 1900, 1906 and 1912.[8] Finally, works by the prominent German military writers Colmar von Goltz and Friedrich von Bernhardi, much discussed in the journals, have also been examined, demonstrating the relevance of articles in the *RUSI Journal* and *The Cavalry Journal* to wider intellectual engagement with the future of war.

One hundred and fifty articles have been identified from these sources as having some relevance to 'the war of the future'. Such a distinction is, necessarily, somewhat arbitrary, and the theme includes many articles discussing technical advances with the potential to effect conflict in the future. As noted above, however, almost all of these are concerned with the impact of technical developments on the *contemporary* armed services. Articles looking further into the future are far less common, and speculation is emphatically frowned upon in several articles. This is a profound point which will be expanded upon below, but it reinforces the fact that what later generations would term futures studies – looking at longer term societal or technological change - were not a feature of contemporary military or naval discourse. Conservatism dominates the articles, and early pieces on aviation set out their technical credentials precisely to confute those who might see them as fanciful. Change is seen as something that could challenge military principles and therefore to be controlled, as well as being presented as something which would only modify existing practice.

[7] Fox, "Learning to Fight," 49.

[8] The year 1900 was selected as it was the first full year of the South African War, and the others sampled at intervals of six years to capture change through the early part of the twentieth century.

The period of study sees changes in the number of articles on the future of the military. Looking purely at the *RUSI Journal* (because the *Cavalry Journal* ran only from 1906 to 1914, and the *Journal of the United Services of India* has only been sampled), 15 relevant articles have been identified in the period 1870-79, and ten in the period 1880-89. In contrast, 32 have been identified in the period 1890-99; 38 in the period 1900-09; and 19 over the shorter period of 1910-14. In other words, there was more interest in the changing nature of war from the 1890s onwards, reflecting greater recognition of the dramatic improvements that were happening in weaponry in the later period, and paralleling rising interest in the civilian press, as discussed in Chapters Three and Four. It is also important to note the number of authors whose names appear in both the *RUSI Journal* and the civilian periodicals, either as serving officers or after retirement. Similarly, topics debated in the civilian press are paralleled in the military journals, with examples including the debate on the armament of the cavalry, so much a feature of the 1900s, and of concerns over ensuring the food supply to Britain in a war. [9]

This chapter has been divided into three parts to focus on different aspects of military engagement with the future. The first part of the chapter is focused on technical developments, which are important as they demonstrate both a healthy interest in new technology, but also a refusal to engage – generally – with their revolutionary potential. New developments were characterised as augmenting current military practice, and not overturning it, such as in the debate on motor vehicles and the role of the cavalry, with articles being careful to highlight the limitations of contemporary vehicles.

The second part of the chapter focuses on articles interested in how the cavalry, artillery and infantry perceived the effect of new weapons on their traditional roles. With great interest expressed in new rifles – paralleling articles in the civilian periodicals – many of the cited articles cover the Russo-Turkish and South African Wars. These recognise the impact of these new weapons on warfare, and do not downplay their significance on the

[9] See, for example; Stewart L. Murray, "Our Food Supply in Time of War, and Imperial Defence," *The Journal of the Royal United Services Institution,* June 1901, 656-729; and Stewart L. Murray, "The Internal Condition of Great Britain during a Great War," *The Journal of the Royal United Services Institution.* December 1913, 1561-1615. In the periodicals see G. S. Clarke, "War, Trade and Food Supply," *The National Review*, July 1897, 756-769; and T. A. Le Mesurier, "Our Food Supply in Time of War," *Westminster Review*, June 1897, 658-668.

battlefield. Nonetheless, they do not extrapolate from the tactical impact of the weapons to their potential at a more strategic level. This is significant because it goes to the heart of the military response to increased fire on the battlefield, which was to change tactics to ensure offensive action remained possible, while failing to consider the way in which war would be altered strategically. In practice, these changes led to trench deadlock in the First World War, but articles in the journals are overwhelmingly focused on the tactical problems of maintaining the offensive in the face of increased firepower.

The third and final part of the chapter identifies a number of articles which *do* present more revolutionary positions, and are interesting for precisely that reason. They are rare in number, and are the exceptions which prove the general rule of conservatism when looking at future developments. These articles make suggestions that the future of war could be different, or engage intellectually with the difficulties of prediction, or foreshadow approaches adopted by futures studies. They show that military thinking was not altogether cautious, while demonstrating that it tended to the conservative on the whole. This conservatism, it must be stressed, was not simply a product of the social structure of the Army, as military commentators had to deal with the reality of war, unlike civilian writers. Radical civilian writers such as Arthur Conan Doyle, who advocated transforming the cavalry into mounted infantry (as described in Chapter Four), had the freedom to make suggestions which might prove disastrous in a future war. Hindsight would show that Doyle was broadly correct in his assertion, but at the time military writers had to balance risk and not simply make changes which would have unknown consequences. This chapter demonstrates military conservatism at work, but it has to be seen within a framework of the unpredictability of war at a time of intense technical change. The future was not known, as the debates on the relative effectiveness of airships and aircraft, or of steam and petrol powered motor vehicles, demonstrate forcibly.

Technical Advances

The *RUSI Journal* and *The Cavalry Journal* contain numerous articles on technical advances in weaponry and their impact on the Army (and Navy). With the exception of a

group of articles on machine guns in the 1870s, all of the others bar one date from between 1892 and 1913. While remembering that *The Cavalry Journal* was only published from 1906 onwards, this still shows a rising interest in technical advances later in the period, with many of those articles concentrating on either motor transport or aircraft. These articles are primarily interested in reporting the latest advances, although at their most revealing when discuss their potential impact on tactics, organisation, or warfare in general.

Although the age was seen as one of 'science', a phrase used widely in the civilian periodicals, very few articles in the *RUSI Journal*, and none in *The Cavalry Journal*, address purely scientific questions, as opposed to technical advances. One of the exceptions consists of a pair of articles on weather forecasting, with Hepworth's 1896 paper discussing its relevance to the Navy and stating that:

> in the naval wars of the future the successful operator will possess a deeper knowledge than now generally obtained of the direction and velocity of ocean streams; of the height, direction and value of ocean tides [and so on].[10]

He underscored the value of such scientific endeavours to enforce the effective blockade of enemy ports, and how they would affect the particular capabilities and limitations of steam ships. In 1908 Rawson published a far more technical paper, which again emphasised the importance of meteorology to naval and military operations, and specifically pointed out the difficulties of forecasting the weather in advance (W. N. Shaw, Director of the Met Office, was present at Rawson's paper). This shows that the *RUSI Journal* was not afraid of publishing difficult scientific studies, as is also demonstrated with lectures on aircraft that contained aerodynamic equations. Nonetheless, very few such papers on purely scientific issues were presented as

[10] W. H. Campbell Hepworth, "Meteorology: A Factor in Naval Warfare," *The Journal of the Royal United Services,* June 1896, 670.

lectures, and the emphasis was on reporting technological advances instead, as would be expected given the practical interests of the armed services.[11]

Chapter Three identified a number of articles on machine guns in the periodicals following the Franco-German War; and there were several on the same subject in the *RUSI Journal*. This debate is interesting because it contrasts military conservatism with the possibility that machine guns could have a more revolutionary impact on war. The earliest dates from 1870 and is by none other than R. J. Gatling, inventor of the eponymous early machine gun. His article contrasted his invention with that of the French *mitrailleur*, which had been used in the Franco-German War, so cannot be considered an impartial assessment.[12] As an inventor interested in selling his wares, it was not surprising that he also attacked military conservatism, and said that "Governments are slow to adapt improvements, even slower than individuals."[13] He cited the sluggardly introduction of percussion caps, rifled barrels and breech loading rifles to the infantry, although noting that the latter were accepted with alacrity across Europe following the demonstration of the effectiveness during the Franco-German War. He was an advocate of the scientific age, such that "on the road, in the field, in the steamship, and in the factory, we can see the wonders that machinery has accomplished."[14] Finally, although he stopped short of suggesting that machine guns would revolutionise warfare, he believed that they would rapidly become adopted and were likely to form a new arm alongside infantry, cavalry and artillery.[15]

---

[11] In the 1870s, Laughton argued for scientific training in the Navy in a pair of articles reflecting the changing nature of naval warfare. These are J.K. Laughton, "The Scientific Study of Naval History," *The Journal of the Royal United Services Institution.* 1874 (Volume 79), 508-527; and J. K. Laughton, "Scientific Instruction in the Navy," *The Journal of the Royal United Services Institution.* 1875 (Volume 81), 217-241. There is also an article which advocated the establishment of a permanent commission on scientific questions of importance to the state, by a Fellow of the Royal Society and military officer, Lieutenant-Colonel Strange, A. Strange, "On the Necessity for a Permanent Commission on State Scientific Questions," *The Journal of the Royal United Services Institution*, 1871 (Volume 64), 537-566. The idea was not taken up, as an example of 'scientific' thinking failing to achieve acceptance by Government.

[12] R. J. Gatling, "Machine Guns: the Gatling Battery - the Agra and Claxton Guns – the French and Montigny Mitrailleurs," *The Journal of the Royal United Services Institution*, 1870 (Volume 60), 505.

[13] Gatling, "Machine Guns", 504.

[14] Gatling, "Machine Guns," 527.

[15] Gatling, "Machine Guns," 528.

An article by H. C. Fletcher two years later cited Gatling's article and, using the term *mitrailleur* as a proxy for machine guns in general, debated their successes and failures in recent wars. The article summarised a contemporary debate on the effectiveness of machine guns and their role on the battlefield as either replacing, or augmenting, light artillery, reflected in civilian articles of the same period.[16] Fletcher, who was a serving lieutenant-colonel from an infantry regiment, drew on trials and experiences from the Franco-German War in his assessment, stating that he wished to demonstrate their significance in recent wars."[17] While not quite as much of an enthusiast as Gatling, he considered that they had the potential to revolutionise war in the future. A third article written by E. Rogers in 1875 echoed Fletcher's view that machine guns could act as an independent arm, again assessing the relative effectiveness of different types and concluding that their use, as well as the increased power of other firearms, meant that "modern tactics seem to court immediate contact in the loosest of formations – and the sooner the better."[18] The theme of increased firepower and its effects on military practice was to become prevalent from the 1890s onward, as discussed in the next part of this chapter. Here, it should be emphasised that the two military officers were more conservative that Gatling, although they did share his view that machine guns were effective and would change tactics to some extent.

The specific discussion on machine guns faded after the 1870s, perhaps because of the lack of European conflict and a wider acceptance of the weapon into contemporary armies; although the *Cavalry Journal* showed more interest in it the decade before the First World War, emphasising their ability to provide the cavalry with increased firepower and thereby their ability to conduct offensive action.[19] One article from the

[16] H. C. Fletcher, "The Employment of Mitrailleurs During the Recent War, and their Use in Future Wars," *The Journal of the Royal United Services Institution*, 1872 (Volume 66), 29.

[17] Fletcher, "Employment of Mitrailleurs", 30.

[18] E. Rogers, "The Gatling Gun: its Place in Tactics," T*he Journal of the Royal United Services Institution*, 1875 (Volume 82), 419.

[19] See R. V. K. Applin, "Machine Guns with Cavalry," *The Cavalry Journal*, July 1907, 320-325. Applin is cited as an expert in machine gun operation, in Timothy Bowman and Mark Connelly, *The Edwardian Army: Recruiting, Training and Deploying the British Army, 1902-1914* (Oxford: Oxford University Press, 2012), 92. One of the themes of the *Cavalry Journal* is that it discusses the specific impact of a range of technologies on the cavalry, such as E. G. Godfrey-Fawcett, "Wireless Telegraphy for Cavalry Use," *The Cavalry Journal*, July 1908, 291-299.

time was a translation of a German discussion of machine gun use with cavalry, demonstrating wider European interest in their tactical utility.[20] Taken as a whole, these articles are restricted in their scope and broadly conservative. Gatling saw it as a potentially revolutionary (undoubtedly the prospect of commercial gain affected his judgement) weapon, and there was some discussion of its use as a fourth arm to supplement the infantry, cavalry or artillery, but most military writers – especially those of the cavalry in later decades - saw it as augmenting current formations and operations. Military writers tended to be more conservative, reflecting both a desire to maintain the status quo, but also through being practitioners liable to caution.

The *RUSI Journal* presented articles on numerous technical subjects such as communication by telegraphy or telephone. A piece from 1878, written by H. R. Preece, stated that "no one can deny the enormous value of the electric telegram…it has revolutionised the art of war [and] operations that were a few years ago impossible are now essential."[21] The author was – like Gatling - a civilian, and he covered the potential application of the telephone to war, through a largely technical discussion of its characteristics. He was at pains, however, to state that it was at an early stage of development and that its greatest impact would lie in the future, recognising how technology would continue to advance. Such was to prove the case, and an article by C. F. C. Beresford – a serving major in the Royal Engineers - fourteen years later showed that the discussion had moved onto the telephone. He even declared that "the discoveries of science that are crowding up the close of the nineteenth century have elbowed the telephone out of the company of novelties."[22] Although similarly technical in scope to the earlier article, it did place the telephone in the context of the evolution of war, noting its potential to affect "the little influence possessed by the commander-in-chief in choosing the occasion of decisive action [which] is really an element of great difficulty in the warfare of the present day."[23] Here, Beresford is expressing the widely

[20] P. Boeresen, "Machine Guns with Cavalry," *The Cavalry Journal*, January 1912, 34-46.

[21] W. H. Preece, "The Telephone and its Application to Military and Naval Purposes," *The Journal of the Royal United Services Institution,* 1878 (Volume 94), 209.

[22] C. F. C Beresford, "The Telephone at Home and in the Field," *The Journal of the Royal United Services Institution,* April 1892, 347.

[23] Beresford, "Telephone", 362.

held view at the time that battlefields were being extended by the increased range of new weapons, making communication with dispersed formations, and therefore decisive action, more difficult.

The emphasis of these articles is a focus on technical innovation, with little wider analysis, and they do not present a greater synthesis on the possible impact of – for example – telegrams and telephones to warfare. A later article is somewhat more comprehensive, as it deals with communication in the Russo-Japanese War, at different levels (company, battalion and regiment) on the battlefield.[24] This was translated from the Russian, thereby showing it reflected direct experience of the Russo-Japanese War, and it stressed the importance of communication on the battlefield. Tellingly, the author stated that "owing to the extent of the modern battlefield, higher commanders must acquire the habit of forming for themselves a picture of the fight from reports which are sent in."[25] These observations once again chime with the recognised difficulties of communicating across dispersed battlefields, although it is the *particular* which is usually being discussed, rather than the more *general* implications on strategy.

Other technical subjects covered in the *RUSI Journal* and the *Cavalry Journal* included photography, railways, the use of cyclists, X-ray technology for medical purposes and even the phonograph.[26] Most were concerned with technical information, although some looked to augmenting (although never replacing) existing military formations with – for example – cyclists. The breadth of the subjects covered is telling, and demonstrates an openness in the military culture of the time to accept new technology,

[24] "The Service of Communication in the Light of the Experience of the Russo-Japanese War," *The Journal of the Royal United Services Institution*, March 1908, 968.

[25] "Service of Communication," 969.

[26] For photography, see C. V. Boys, "Of the Photography of Flying Bullets by the Light of the Electric Spark," *The Journal of the Royal United Services.* August 1893, 855-873. For railways, see J. L. J. Clarke, "Railways in Modern Warfare," *The Journal of the Royal United Services Institution,* April 1904, 406-411. For cyclists, see A. H. Trapmann, "Cyclists in Conjunction with Cavalry," *The Cavalry Journal*, July 1908, 353-364. For X-rays, see W. C. Beevor, "The Working of the Roentgen Ray in Warfare," *The Journal of the Royal United Services Institution,* October 1898, 1152-70. For the phonograph, see G. V. Fosebery, "The Phonograph and its Application to Military Purposes," *The Journal of the Royal United Services.* September 1893, 989-999. The latter article is interesting because it discusses using the phonograph to record messages and transport them across the field, an approach that was certainly novel, although never actually adopted.

while all the time suggesting that it would not radically alter the conduct of war. They represented improvements, even in the areas of motor transport or aviation, which were much discussed in the military journals.

There is one article from the nineteenth century on steam transport on roads, noting that in the year of publication (1894) there were already 4,000 such vehicles in Britain.[27] This provides context and illustrates the point that many of the technologies reviewed in the *RUSI Journal* were, like motor vehicles, photography and the telephone, largely being developed for civilian use. Unlike rifles, machine guns or artillery, these innovations were being adapted for military use, and many of the articles report on progress and their relevance to the army. The author, Templer, noted their value given the recognised shortage of horses in Europe, cited examples of their use in Italy and Switzerland, and of the widespread European interest in the military applications of steam transport.[28] He covered the financial aspects of vehicle ownership, the ability of industry to build military vehicles as variants of civil vehicles, and of the need to provide an organisation to maintain, train and study them. In common with the articles on machine guns and communications discussed above, however, he did not move onto a view of how such vehicles might affect war, in either the short or long term.

It was the twentieth century which saw the publication of many more articles on motor transport, as the technology developed and the army began to use such vehicles more widely, and some did start to think ahead to their effect on war, albeit mostly junior officers. The rapidity with which motor vehicles were evolving was understood by the authors of these pieces, as can be seen by this statement by C. E. I. McNalty in 1904: "in the discussion of a subject in a state of rapid evolution, it is not easy to differentiate between the present, past and future."[29] McNalty was a serving major, and his article primarily dealt with technical detail, including a view that the deployment of traction

[27] Templer, "Steam Transport on Roads," *The Journal of the Royal United Services,* August 1894, 829.

[28] Templer, "Steam Transport," 829.

[29] C. E. I. McNalty, "Mechanically Propelled Vehicles for Military Purposes." *The Journal of the Royal United Services Institution,* November 1904, 1229.

engines in South Africa had resulted in considerable financial savings.[30] He did express the view that mechanically-powered vehicles could service as transport for officers (motor cars), messengers (motor cycles) or the transport of heavy field guns and munitions.[31] He then looked further forward, suggesting that "in the future we look for the movement of motor cars over all surfaces possible to the animal."[32] This led him to conjecture that motor vehicles could be used to mass infantry for flank attacks, or for concentrating defensive fire. He even considered the use of light guns or machine guns mounted on them to provide supporting fire. Overall, McNalty was realistic about what contemporary vehicles were capable of achieving, but also – unusually - of their potential future capabilities.

A similar article by de Watteville – with the even more junior rank of lieutenant – made similar points about the specific use of motor cycles, including potential future roles for their use.[33] Two years later and Paynter, a retired Naval officer, diligently reported on recent developments with motor vehicles and was concerned that little practical experience had been gained with the military use of motor vehicles, except on manoeuvres.[34] He went on – like McNalty - to note the potential usefulness of motor vehicles in meeting the challenge of the widely scattered formations of troops resulting from modern warfare.[35] While he doubted the ability of contemporary vehicles to transport large numbers of troops, he argued that they could move small forces rapidly, even mentioning the concept of 'motor infantry' (the British Army was to become entirely motorised by 1939).[36] He even considered – in the manner of similarly equipped trains – that "the armoured motor will doubtless find a place in the war of the future."[37] The debate that follows his lecture is instructive as it demonstrates a measure

[30] McNalty, "Mechanically Propelled," 1235.

[31] McNalty, "Mechanically Propelled", 1229.

[32] McNalty, "Mechanically Propelled," 1232.

[33] De Watteville, "Motor Cycles for Military Purposes," *The Journal of the Royal United Services Institution,* March 1904, 245-254.

[34] Hugh H. Paynter, "The Use of the Motor Car in Warfare," *The Journal of the Royal United Services Institution,* June 1906, 766.

[35] Paynter, "Motor Car," 770.

[36] Paynter, "Motor Car," 770.

[37] Paynter, "Motor Car," 771.

of understanding its potential in the future, but also conservatism, with the Chairman, Major General A. H. Paget, inviting a return to further debate in his concluding remarks:

> I have no doubt that on some future occasions, when perhaps the car as a military machine is in a more perfect state, and experiments have been tried, that he will give his attention to it, and go more closely into the question of motor cars being used on a very large scale for transport purposes, which I think would be a distinct advantage for the rapid movement of troops in the field.[38]

The phrasing is illuminating. Yes, he is saying, the motor car could have an impact on war, but not yet as it is too immature and untested. This form of conservatism can be seen to impede experimentation; once more, technical lectures from junior or retired officers were welcome, but did not necessarily lead to a serious effort to test the motor car more widely. Indeed, as is discussed below, there was a particular reluctance on the part of the cavalry to see motor vehicles as anything other than a purely supportive arm before the First World War.

It is nonetheless important to recognise the context of the debate at the time, and not to mistake caution for entrenched conservatism. For example, in 1910 the military had not determined whether it would be steam power or the internal combustion engine which would come to be more commonly used in military vehicles. This debate is evident in an article from 1910 with the author, Clarkson, believing that steam would win out.[39] Paynter also touched on this subject in his article from four years earlier, although he favoured petrol powered vehicles due to the time it took steam vehicles to get moving.[40] With hindsight, and the eventual dominance of the internal combustion engine, this discussion seems archaic, but highlights the challenges the military establishment faced

[38] Paynter, "Motor Car," 784. One of the attendees, Major Lindsay, noted the huge potential of motors and calls for greater sympathy from officers, noting that "as the age becomes mechanical that will become a natural feature," Paynter, "Motor Car", 775.

[39] T. Clarkson, "The Use of Motors for the Transport of Troops," *The Journal of the Royal United Services Institution,* April 1910, 454.

[40] Paynter, "Motor Car," 773.

with operating motorised vehicles. The future was an uncertain place, and it was seen as risky to allow speculation to alter military structures or practices.

Later articles, in the years up to 1914, became more prosaic, discussing more detailed problems such as the use of motor vehicles to transport ammunition; or the necessity to standardise civilian motor vehicles so that they could be more easily taken up for use in war.[41] These articles illustrate a general tendency to concentrate on practical matters, rather than looking forward to their wider effect on future war. They also mark a retreat from speculation to more prosaic treatments as the technology matured, as if by focusing on technical detail wider and uncomfortable questions about their future use could be avoided.

The decades to come, and impetus of the First World War, were to show just how important motor vehicles were to become for the British army, and no arm was affected more than the cavalry, which became mechanised in the interwar years. There is, however, little foresight visible about their use in *The Cavalry Journal* (especially when measured against the number of articles on aircraft, as discussed below). One of the few examples discussed the use of motor cycles in conjunction with cavalry, in an article which considered them to be useful as messengers, while adding that they "cannot, and should not, be allowed to replace the horse in close contact with the enemy."[42] Another article, written two years earlier in 1909, maintained a cautiously positive stance with regard to motor cars, considering that as they effect mobility they should be of interest to the cavalry, as that was its *raison d'etre*.[43] The authors discussed the attachment of motor cars to the Cavalry Division, but they are clearly seen as augmenting their operations, rather than being a potential replacement for horsed cavalry; and the authors commented that "armoured machine-gun wagons have of course been talked

[41] Respectively, H. de Pree, "The Supply of Ammunition and Motor Transport," *The Journal of the Royal United Services Institution,* August 1912, 1149-1164; and H. C. L. Holden, "The Standardization of Mechanically Propelled Commercial Vehicles for Military Purposes in Time of War," *The Journal of the Royal United Services Institution,* October 1913, 1313-1318.

[42] Lancer, "Motor Cycles with Cavalry," *The Cavalry Journal*, April 1911, 148.

[43] M. J. Mayhew and Skeffington Smythe, "Motor Cars with the Cavalry Division," *The Cavalry Journal*. October 1909, 442.

of…[but] their advantages are small and their practical disadvantages many."[44] These two short articles are the only ones in *The Cavalry Journal* from 1906 to 1914 to discuss motor vehicles. Even more than the largely negative treatment of the potential of motorised operations, it is the absence of articles that is most telling. It indicates a denial of progress, especially beyond the near future, by simply refusing to engage with the subject.

It can be seen that mechanically powered vehicles were being widely tested, experimented upon, and used by the British Army in the decade or so up to 1914. The focus of articles in the *RUSI Journal* is on technical detail, and not generally on the wider potential implications of the new technology.[45] The caution of Army officers must be understood as they were dealing with a new and untested technology, but nonetheless there was little desire to explore their revolutionary potential, reflecting the lack of articles dealing with the strategic impact of technological change. The cavalry especially chose to ignore them, or damn them with the faint praise of being useful adjuncts, but not a serious challenge to the mounted horseman. Similar views pervaded the debate on that even more radical of the new technologies at the turn of the century: flight.

The *RUSI Journal* published several articles on the subject of flight *before* it had been successfully demonstrated by heavier-than-air craft, and only fitfully by lighter-than-air craft.[46] A remarkable article from 1885 discussed the theoretical use of future 'air

[44] Mayhew and Smythe, "Motor Cars," 440.

[45] The cautious, conservative and (frankly) rather dull treatment of motor vehicles by the British Army contrasts with the thesis of Moser that the rise of 'automobilism' was one factor contributing to an acceptance of war in 1914 through rising aggression, in Kurt Moser, "The Dark Side of Automobilism, 1900 – 1930," *The Journal of Transport History* 24(2) (2003): 239. To be fair, the *RUSI Journal* represents a publication in tune with official policy, and cannot be expected to display more visceral feelings. Nonetheless, the cavalry at least were still defending the use of horses rather than motor vehicles right up to 1914, which indicates that Moser's views are open to challenge, or at least modification, in the case of Britain, as they might be precisely the corps who would appreciate the excitement and speed of cars at the time. Moser, "Dark Side," 242 explicitly mentions drivers calling their cars 'steeds' and yet there is little to no indication of a desire by the British cavalry to use cars in war, partly for practical reasons that they were not yet capable of cross country operation.

[46] The Wright brothers are considered to have made the first successful heavier-than-air flight in 1903. For navigable (dirigible) airships, their history is longer and less consistent. Henri Giffard successfully flew a steam powered airship in 1851, and there were numerous steam, internal combustion or electrically powered airships built in the latter half of the nineteenth century. It was only in the twentieth century, however, that airships became both an effective weapon of war and capable of carrying passengers, notably with Zeppelin's

torpedoes' – the term meant navigable airship – and how their operation might affect war.[47] What makes this article stand out is that it is far more speculative than the vast majority in the *RUSI journal*, and is a rare example of looking far ahead technologically, at a time when powered flight was in its infancy. The talk was given by the author Frederic Gower and was preceded by a brief introduction by the Chairman, Professor Frederic Abel, who made the point that the speaker was a "visionary enthusiast" and collaborator with Alexander Graham Bell.[48] It is hard not to see this as a remark as designed to boost the credibility of Gower and prevent any allegations that he was a crank. Much of the article deals with rather speculative technical matters, but moves onto more interesting ground when it discusses how 'air torpedoes' would operate in war, and their potentially disruptive power:

> And I cannot better express the aim of the aerial-torpedo system, as applied against armies, than in saying that it seeks to enable you to do in this way at 30 or 40 miles distance, that which you now effect at 3 or 4. It is upon this point, first of all, that your judgment is invited. Would an attack so delivered be likely to add very greatly to the destructive effects of war?[49]

Gower goes on to discuss their potential use on civilian targets, naval targets, and even whether such aerial warfare might be banned by international treaty. With hindsight, of course, he was to be proved right, albeit thirty and more years in the future. This insight, and his clear focus on the *effects* of aerial warfare, rather than the *technicalities* of powered flight, counterpoints the generally short term and conservative nature of articles in the *RUSI Journal*. The Chairman framed the discussion by stating that:

> we know in the case of the telephone, for example, that even eight or nine years ago it would have been considered almost visionary to believe that friends and

---

designs, with the successful foundation and operation of DELAG, which flew airships from 1909, and was the world's first commercial airline.

[47] Frederic Gower, "A System of Air Torpedoes: With Remarks Upon the Late Attempts at Air Navigation for War Purposes," *The Journal of the Royal United Services Institution,* 1885 (Volume 131), 857-873.

[48] Gower, "Air Torpedoes," 857.

[49] Gower, "Air Torpedoes," 865.

> business acquaintances would freely converse as they now do from distant parts of this metropolis on all subjects with the greatest ease.[50]

Few other articles were this forward-looking, however, on warfare in the air or any other subject. It may have helped Gower that at the time he wrote the article, navigable flight was still not truly possible, giving him space to speculate.

Fullerton wrote three summaries of aerial navigation in the *RUSI Journal* over the course of two decades. The first was written in 1892, when he was an army captain, and had to be caveated with the statement that "Hitherto, unfortunately, in this country aerial navigation has been looked upon, to put it mildly, with the deepest suspicion, and it is no exaggeration to say that the terms 'aeronaut' and 'lunatic' are at present considered as more or less synonymous."[51] This echoes the Chairman's pre-emptive defence of Gower at his lecture of 1885, but what follows forcibly contradicts any thought of lunacy, as the article is highly detailed in its coverage of aerodynamics and theories of flight, including equations applied to both heavier-than-air and lighter-than-air craft. The focus is on technical detail, underscoring the seriousness of the subject, as is the list of books and papers Fullerton cited on the subject.[52] In his conclusions he emphasised the "importance of making really careful and scientific experiments on the subject, so as to obtain thoroughly satisfactory data to work from."[53] Only at the end of the article does Fullerton move, in a single phrase, beyond his avowedly technical approach and conclude that aerial navigation would have a profound effect on Britain and that "an aerial navy of the very first class will be an absolute necessity."[54]

Fullerton wrote another article on aerial navigation in 1907, fifteen years after his initial article, by which time he had retired from the army with the rank of colonel. Baden

---

[50] Gower, "Air Torpedoes," 857.

[51] J. D. Fullerton, "Modern Aerial Navigation," *The Journal of the Royal United Services Institution*. July 1892, 719.

[52] Fullerton, "Modern Aerial Navigation," 743.

[53] Fullerton, "Modern Aerial Navigation," 742.

[54] Fullerton, "Modern Aerial Navigation," 742.

Baden-Powell was in the Chair (brother of Robert Baden-Powell, founder of the scouting movement, and also an Army officer), who had written about feasibility of using manned kites for observation in 1895.[55] Fullerton's second article is another technical exercise which demonstrates the great advances made in the subject since the late nineteenth century.[56] He covered development in airships through French, German (particularly Zeppelin) and Italian innovators, with a highly technical discussion of their construction and the forces acting upon them in flight. He followed this with a discussion of different types of heavier-than-air vehicles, categorising them as gliders, 'soaring machines' and 'driving machines', developed by the Wright Brothers, Langley, Phillips and Maxim, again with diagrams and technical detail. He addressed the relative merits of airships and aircraft – paralleling the debate on the best way to power motor vehicles, and concluded that:

> On the whole, the dirigible balloon does not seem to be a very satisfactory solution to the problem of flight. It must be of considerable size in order to carry any reasonable weight, its speed is limited, and there are many difficulties in connection with its construction and management. It also, contrary to popular ideas, requires some sort of land harbour for starting and alighting, and cannot rise and descend at any time and anywhere as is usually supposed. Taking one thing with another, I believe that it would be better to stop the construction of dirigibles [airships] altogether, as the cost of building them is not commensurate with the results obtained.[57]

This passage illustrates the analytical approach adopted by Fullerton. As with his previous article, it was only in his concluding comments that Fullerton went beyond a technical discussion and onto the wider subject of 'the flying machine in war'. He

---

[55] B. Baden-Powell, "Kites: Their Use in War," *The Journal of the Royal United Services.* September 1895, 887-902. Baden Baden-Powell is mentioned in the biography of his more famous brother in *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for Robert Baden-Powell (1857-1941), https://doi.org/10/1093/ref:odnb/30520.

[56] J. D. Fullerton, "Recent Progress in Aerial Navigation," *The Journal of the Royal United Services Institution*. January 1907, 11.

[57] Fullerton, "Recent Progress," 44.

argued, at greater length than in his previous paper, that they would be used in war against other airships, land forces and navies; and that aerial battles would be important to determine which side secured control of the air.[58] He also suggested that they would be used to reconnoitre sea forces and attack them, using camouflage to make them resemble the sky, and that they would be used to locate and destroy submarines.[59] In the debate which followed his talk, Colonel Capper (author of another article discussed below) noted the danger to Britain of aerial forces or even invasion from the air, although he commented that they lay in the unknown future.[60] This reinforces the sense that RUSI was not comfortable debating what it thought of as less than concrete technical issues, although Capper concluded that "[Britain] should be able to rule the winds as it now rules the waves."[61]

Fullerton's third article on aerial navigation was published in 1913. In it, he continued his scientific approach to the subject, beginning with a discussion of how the science of fluid dynamics could be used to improve aircraft design.[62] He maintained his generally dismissive view of airships and discussed aircraft at greater length, including more speculative debate on helicopters and ornithopters (aircraft with moving wings mimicking the way which birds fly). He cited the use of wireless telegraphy as being of importance to operations in the air, noting that Zeppelins had demonstrated communication over distances of 300 miles.[63] In his concluding remarks, aside from stressing the need for more scientific analysis on the atmosphere, birds and stability in flight, he stated that "there is little doubt that the time has come for the separation of the 'Air Forces' from the 'Land' and 'Sea' services."[64] It is difficult not to be struck by perceptive remarks of Fullerton like this, but compared to his previous article there is less outright speculation. The maturing of actual aviation has narrowed his perspective, taking him away from thinking of the future to focus on more prosaic technical matters.

[58] Fullerton, "Recent Progress," 44.

[59] Fullerton, "Recent Progress," 44.

[60] Fullerton, "Recent Progress," 53.

[61] Fullerton, "Recent Progress," 54.

[62] J. D. Fullerton, "Aeronautical Progress," *The Journal of the Royal United Services Institution,* March 1913, 305.

[63] Fullerton, "Aeronautical Progress," 328.

[64] Fullerton, "Aeronautical Progress," 332.

It seems that when there was little in the way of real aviation to debate, speculation came easier.

Fullerton's articles were not the only ones on aerial navigation in the *RUSI Journal* – as a nod to the growing importance of aviation to the armed services, July 1911 saw the first monthly set of 'Aeronautical Notes' to add to the existing Naval and Military Notes. In 1906 there was an article on military balloons by Capper, who intervened in the discussion on Fullerton's 1907 paper. Capper emphasised their value in reconnaissance through the use of photography from altitude, albeit noting that that it remained at an experimental stage.[65] He discussed contemporary developments in aerial navigation, but like Fullerton, left his most interesting comment to the end of the article, such that: "When [future aeroplanes] become fully developed, war will be so immediately brought to the very door of the citizen…[so] that it will become amongst civilized nations a calamity far more dreaded than even at present."[66] Capper is seeing war in the air as acting as a deterrent, and the aeronaut as a form of peacemaker. These comments are, however, only at the very end of his article and feel almost like marginalia.

Something similar may be seen in a pair of linked articles published in 1908, which discussed the value of airships to the German Navy, translated from the German periodical *Marine-Rundschau*. Amidst the lengthy practical discussions are some broader comments; the first being the suggestion that aerial bombardment might have a considerable morale effect on those subjected to attack.[67] Another is the perception that Germany was significantly in advance of France – and particularly Britain – because it has been experimenting with a wider range of airships.[68] The German author of the original article specifically attributes Britain's lack of progress to its large Navy.[69] Even considering the threat of Germany at the time, and the demonstration of the significant

[65] J. E. Capper, "Military Ballooning," *The Journal of the Royal United Services Institution,* July 1906, 896.

[66] Capper, "Military Ballooning," 900.

[67] "The Possibility of Making Use of Balloons and Motor Air-ships in the Navy," *The Journal of the Royal United Services Institution*, December 1908, 1670.

[68] "Balloons and Motor-Airships," 1657.

[69] "Balloons and Motor-Airships," 1675.

efforts it was making with lighter-than-air aviation at the time, the focus of the article is resolutely technical.

The Cavalry Journal published four articles on the use of aircraft with cavalry between 1910 and 1913. All of them suggested that there was utility in using aircraft in conjunction with cavalry, to discharge one of the traditional duties of that arm – reconnaissance. Although this might be seen as forward looking, the articles are quick to assert that aircraft could only augment cavalry, and not replace them in the future. Lascelles, a serving captain, suggested that while it is necessary to keep abreast of developments in aviation, there was little reason to suggest that aircraft marked a revolutionary change in the methods of war.[70] Indeed, he concluded firmly that aircraft of 'either type' (airships or heavier-than-air craft) would not supersede the role of cavalry.[71]

This argument is repeated by Waldron (another junior officer with the rank of lieutenant) in 1913, even though he is cited as being a member of both the 19th Hussars and the Royal Flying Corps. After a discussion of the present capabilities of aeroplanes, he concluded that they could not compete with cavalry as – even when they were armed – they were incapable of decisive fire and lacked the numbers to effect a battle.[72] As with Lascelles, he saw aeroplanes as helping little in tactical reconnaissance but being of more use in a strategic role; and therefore certainly not capable of supplanting cavalry.[73] As so often, there is little consideration that aircraft would develop in the future, and these articles resolutely deny that the traditional role of cavalry could ever be supplanted. [74]

[70] E. F. F. Lascelles, "The Airship and Flying Machine in War: their Probable Influence on the Role of Cavalry," *The Cavalry Journal*, April 1910, 208.

[71] Lascelles, "The Airship," 212.

[72] F. E. Waldron, "Aeroplanes and Cavalry," *Cavalry Review*, July 1913, 314.

[73] Waldron, "Aeroplanes and Cavalry," 318.

[74] Brett Holman, "The Phantom Airship Panic of 1913: Imagining Aerial Warfare in Britain before the Great War," *Journal of British Studies January* 2016: 113, reports on the large number of imaginary airships seen around 1913, which he attributes to fear of German aerial superiority. Certainly there is little in RUSI to show

These articles on technical advances share much in common. They are almost all written by junior officers or civilians and focus on technical developments to the near exclusion of how they had, or were likely to, effect war in the future. New technologies are presented as interesting but as purely supplementary to existing military practice, and there is a determined effort to concentrate on technical matters as a badge of seriousness. What little speculation there is reduces as the actual technologies develop, particularly in aviation, leaving a focus on the present time rather than the future. The *RUSI Journal*, and to a lesser extent *The Cavalry Journal*, do engage with new technologies, but they lack an approach to engage with its possible effects. The future is not really being interrogated, speculation is tolerated only as marginalia, and the intellectual framework for examining the impact of technical change is absent.

The Three Arms

Contemporary sources frequently discussed the way in which new weapons had effected the roles of the three traditional combat arms: infantry, cavalry and artillery. Of the three, the most ferocious debate, as discussed in Chapter Four, was reserved for the cavalry, and there were, inevitably, a large number of articles on its role in *The Cavalry Journal*. These, along with a smaller number of articles in the *RUSI Journal*, go through the well-recognised debate about the armament of the cavalry and whether the emphasis should be on dismounted action with the rifle, or mounted action with sword and lance. What many of the articles unconsciously reveal, however, is a sense of increasing constraint in the ability of the cavalry to discharge its role on the battlefield, often resorting to special pleading for the perceived failure of cavalry in contemporary or recent wars; or else making strident statements that the cavalry were *more* relevant in modern war. Emblematic of this is an article from the first year of publication of *The Cavalry Journal*, by Chares Sydney Goldman, which drew on the experiences of cavalry in the Russo-Japanese War:

---

alacrity at German advances, and once more, the articles focus on the tactical use of aircraft, and not strategic issues of Britain's potential vulnerability to aerial attack

> It is precisely because of the immense changes which have evolved themselves in every sphere of life, not only in armament, that their opportunities for decisive action in all branches of their employment have increased, almost in the same proportion as the size of the armies involved.[75]

Such positions were also reflected in the periodicals, arguing that the increased scale of the battlefield, and the size of the armies involved, meant that cavalry were more necessary than ever, due to their mobility.

A review in *The Cavalry Journal* of Bernhardi's work *Cavalry in Future Wars*, published in 1907, made the same point; writing that "the tactical possibilities open to [cavalry] may be somewhat more restricted, but its strategical importance is greatly increased."[76] It is interesting that this view stands in opposition to the statements on aircraft published in *The Cavalry Journal*, which considered that flying machines would support the strategic reconnaissance role of the cavalry, but not its tactical role in the same sphere. If the true role of cavalry in future was to be strategic, then aircraft – acknowledged as being ideal for strategic reconnaissance – would surely be of great utility. These contradictions illustrate the intellectual difficulty the cavalry were having in framing its role on the battlefield.

The book reviewed by the article, *Cavalry and Future Wars* had first been published in 1899, but was repeatedly translated and reprinted through to the First World War. Bernhardi was a noted military writer, who the peace campaigner and contemporary Norman Angell considered, in 1913, to be "probably the most influential German writer on current strategical and tactical problems."[77] Bernhardi recognised that war had changed the role of cavalry through the introduction of new weapons, and drew on the South African War, Franco-German War, Russo-Turkish War and the American 'War of Secession' as evidence, holding that "if we are to maintain our position as an effective

---

[75] Charles Sydney Goldman, "Cavalry: its True Functions in Modern War," *The Cavalry Journal*, January 1906, 79. Goldman translated Bernhardi's "Cavalry in Future Wars" into English for publication, in the same year.

[76] "Review: Cavalry in Future Wars," *The Cavalry Journal*, January 1907, 83.

[77] Norman Angell, *The Great Illusion* (New York and London: G P Putnam's Sons, 1913), 158.

arm we must break with many experiences of the past, and work out for ourselves principles of action which must be deduced essentially from the probable requirements of the future."[78] As highlighted by the reviewer of his work in *The Cavalry Journal*, he thought that cavalry would have less freedom of action on the battlefield, but that their strategic role was even more important for finding ways of manoeuvring to achieve a decisive victory.[79] It is easy to see why Bernhardi was held in such esteem in *The Cavalry Journal*.

As well as such reasoned argument about the greater role of cavalry, there were others who used more emotional positions such as the anonymous writer Eques (see Chapter Four for his writing in the civilian periodicals), who wrote in the *Cavalry Review* in 1908. He acknowledged that cavalry could not charge home against infantry or artillery, but that it could be done in conjunction with other arms; and that "the question of armament is secondary, the charge has been successful or a failure accordingly as it has been tactically well or badly led."[80] This reflected an emphasis on 'the spirit of the cavalry' which was prevalent in many contemporary articles in the periodicals, calling on cavalry commanders to be decisive and enterprising.[81] Another more extreme example came in an article published by Battine in 1908, this time in the *RUSI Journal*, which discussed the 'ardour of the horse soldier' in near mystical terms.[82]

Such positive statements on the cavalry are hardly surprising, as most come from *The Cavalry Journal* or cavalry officers writing in the *RUSI Journal*. At one level many of them reflect an understanding of the problems of contemporary warfare. On the other, there is a sense of the cavalry 'protesting too much' and asserting its greater importance in the

[78] Friedrich von Bernhardi, *Cavalry in Future Wars*, trans. Charles Sydney Goldman (New York: E P Dutton & Co., 1906), 8.

[79] Bernhardi, "Cavalry," 294.

[80] Eques, "Cavalry on the Battlefield," *The Cavalry Journal*, April 1908, 138.

[81] It is telling that the very second article in the first edition of *The Cavalry Journal* is entitled 'The Spirit of Cavalry' and includes a lengthy historical analysis of cavalry; see Major G. des Barrow, "The Spirit of Cavalry," *The Cavalry Journal*, January 1906, 12-23.

[82] C. W. Battine, "The Use of the Horse Soldier in the Twentieth Century," *The Journal of the Royal United Services Institution*, March 1908, 319. Battine wrote a piece on Britain's duty to France in *The Fortnightly Review* in 1909.

face of growing evidence that its role was becoming diminished on the battlefield.[83] This is no more evident than in reports on the effectiveness of cavalry in the Russo-Japanese War, which was of huge interest to the military of the time, and the cavalry in particular.[84] For example, an article by Wylly in 1911, reported the view of one Colonel Nowizki in *Russki Invalid*, who unflinchingly stated that the regular Russian cavalry regiments in 1904-5 had failed completely on the battlefield.[85] Nowizki recognised that their tactical significance had been reduced, although he considered that they would still have a psychological effect and could still operate successfully in twilight, darkness or across broken ground.[86] Another example is a piece from 1913, entitled 'How Not to Do It', the title of which says it all, in which the author criticises Cossack performance in the Russo-Japanese War.[87] Yet another article, this time a translation from the German *Internationale Revue nach Kavalleristischen Monatshefte,* contains an impressive list of special pleading for the perceived failures of the cavalry in recent conflicts:

> It will suffice for us to briefly recall the absolutely abnormal conditions under which the Anglo-Boer War was waged…..In Asia, the Japanese only disposed of a very weak cavalry, while that of the Russians was not at all prepared.[88]

While there may be truth lying behind all of these statements, they give an impression of increasing practical difficulty for cavalry in the field, requiring greater training, leadership or 'spirit' to overcome adversity. Similar comments are applied to the Balkan War of 1913 by another article from the same German publication, such that "it may be said that in the Balkan War the cavalry did more work than would, from the nature of

[83] See, for example, H. Clifton Brown, "The Increased Importance of Training our Cavalry in Mobility." *The Cavalry Journal*, October 1907, 446-455.

[84] See, for example, the series of four articles published on the subject in *The Cavalry Journal* in 1908-9; W. H. Birkbeck, "The Russo-Japanese War. – I," *The Cavalry Journal*, October 1908, 501-517; W. H. Birkbeck "The Russo-Japanese War. – II," *The Cavalry Journal*, January 1909, 32-46; W. H. Birkbeck, "The Russo-Japanese War. – III," *The Cavalry Journal*, April 1909, 186-194; and W. H. Birkbeck, The Russo-Japanese War. – IV," *The Cavalry Journal*, July 1909, 298-307.

[85] W. C. Wylly, "Some Russian Views on the Employment of Cavalry," *The Cavalry Journal*, January 1911, 85.

[86] Wylly, "Russian Views," 86.

[87] H. M. Johnstone, "How Not to Do It," *The Cavalry Journal*, October 1913, 404-414.

[88] Immanuel, "The Importance of Fighting Dismounted for Cavalry, and the Place to be Assigned to it in Action and Instruction," *The Cavalry Journal*, October 1911, 455.

the country, have reasonably been expected."[89] Here it is the terrain that is the culprit, and what emerges is the sense of an arm striving to remain relevant and fighting a spirited rear-guard action against the evidence of its increasingly limited role. Articles in the military journals do not generally look further than the immediate future, but in the case of the cavalry such myopia comes across as a wilful refusal to face what the future might bring.

It is striking that the number of articles in the *RUSI Journal* dedicated to the artillery is far less than that of the cavalry, which is telling with hindsight, given its immense significance during the First World War. Only three articles relating to the future of artillery can readily be identified, with the first in 1892, which was a flatly technical article on Continental developments of field artillery.[90] Of more interest to the future direction of war are two later articles, the first of which appeared in 1906. The first was an article by J. F. Cadell, which was largely technical in nature, although he criticised the use of cover and reverse slope tactics (placing artillery behind the crest of a hill to prevent it being easily engaged), to suggest instead that it could be placed on the skyline to engage the enemy more directly.[91] He used the Russo-Japanese War to support his position and compared the Japanese forward tactics favourably to the Russians' more cautious approach, suggesting that they preserved their materiel, but did not use it effectively.[92] Cadell was unwittingly putting forward the tactics used at the start of the First World War, which were to prove costly to the British Army, although he acknowledged the value of indirect fire in semi-siege operations, which were to dominate the Western Front from 1915 onwards.

A very different stance was taken by E. M. Molyneux in 1909, who drew extensively on the experiences of the South African War and the Russo-Japanese War in his discussion of artillery fire. In contrast to Cadell, he saw enormous value in maintaining the

[89] "The Work of the Cavalry in the Balkan War," *The Cavalry Journal*, January 1914, 77.

[90] E. Lambaet, "The Field Gun of the Future," *The Journal of the Royal United Services Institution*, October 1892, 1155-1170.

[91] J. F. Cadell, "Theories as to the Best Position for Quick Firing Shielded Field Artillery, *The Journal of the Royal United Services Institution,* December 1906, 1477.

[92] Cadell, "Best Position," 1479.

invisibility of artillery.[93] He explained how the use of telephones and observation posts by the Japanese had enabled them to effectively direct artillery fire.[94] What is interesting here is that both authors are drawing on the Japanese experience of the war, but reaching radically different conclusions. Molyneux identified the importance of telegraphy and potentially, in the future, wireless communication, to relay messages between artillery and infantry. These views show an impressive grasp of what was to be important in the future, but his contradictory stance to Cadell also demonstrates uncertainty on how artillery should be used in the future.

There was far more interest in the increasing firepower available to infantry between the Franco-German War and the First World War, than the future of artillery. Captain H. Brackenbury, Professor of Military History at the Royal Military Academy, wrote a perceptive article about the altered conditions of war as early as 1873, drawing on the experiences of the Franco-German War to demonstrate the great difficulties of advancing under fire.[95] Much of his article dealt with potential new formations for the British Army, although he concluded with an ominous point for the future, that "how is it that, while the defence is apparently so enormously powerful, the attack will ever succeed?"[96] He suggested that the answer might lay in preparatory artillery bombardment, concentrating fire and choosing the point of attack, and his article is the first of many which discussed the challenge of conducting successful attacks in the face of improved infantry fire.

The bulk of articles on improved infantry fire date from after 1878 and the Battle of Plevna. C. B. Brackenbury – the brother of H. Brackenbury - returned to the subject ten

---

[93] E. M. Molyneux,. "Artillery Support of Infantry," *The Journal of the Royal United Services Institution,* November 1909, 1459.

[94] Molyneux, "Artillery Support," 1461.

[95] H. Brackenbury, "The Tactics of the Three Arms as Modified to Meet the Requirements of the Present Day," *The Journal of the Royal United Services Institution,* 1873 (Volume 74), 618. Brackenbury wrote a piece on ironclad field artillery in *The Nineteenth Century* five years later. Sir Henry Brackenbury was described as "the cleverest man in the Army", rose to the rank of Lieutenant-General and was involved in the reorganisation of the artillery in the latter decades of the nineteenth century. Biographical details from *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for Henry Brackenbury (1837-1914), https://doi.org/10/1093/ref:odnb/32021..

[96] Brackenbury, "Tactics," 630.

years later with an extensive study of British and Continental military works.[97] He presented a realistic treatment of warfare, citing French, Austrian and Italian writings to highlight the evolution of open tactics in response to increased defensive firepower.[98] He was equally pragmatic about the emergence of a greater level of fortification, noting that "[the spade] is now adopted throughout Europe, and the chief point is to practice the men in leaving cover quite as much as in making it."[99] He placed an emphasis on needing better trained infantry to overcome these challenges, as well as emphasising the need for armies to train individuals to have more initiative.[100] Similar views on the subject of firepower were expressed by many writers after the Russo-Turkish War, paralleling its impact on perceptions – and the battle of Plevna in particular – in the civilian periodicals.[101] The articles in the *RUSI Journal* tended to be hard-headed and concerned with the practical conduct of warfare, and did not share the sense of increasing dread at the prospect of war so evident in the periodicals, which is unsurprising for what was a professional publication.

Other articles concerned with infantry firepower discussed the technical development of the rifle, specifically with those which promised to deliver even greater volume of fire. Most were narrowly concerned with issues such as the potential for troops with more effective rifles to use ammunition too quickly, such as one written by Fosebery in

[97] C. B. Brackenbury, "The Latest Development of the Tactics of the Three Arms," *The Journal of the Royal United Services Institution,* 1883 (Volume 120), 455. He also wrote on the subject of using armoured shields on artillery in the civilian periodicals, as described in Chapter Three.

[98] Brackenbury, "Latest Developments," 443.

[99] Brackenbury, "Latest Developments," 442.

[100] Brackenbury, "Latest Developments," 453.

[101] See Sir Arnold Kemball, "Lessons from the Late War," *The Journal of the Royal United Services Institution,* 1878 (Volume 98), 942; Walter H. James, "Modern Fire: Its Influence on Armaments, Training and Tactics," *The Journal of the Royal United Services Institution,* 1880 (Volume 106), 378-403; and then Walter H. James, "On Some Changes in Tactics Caused by the Increased Power of Modern Fire," *The Journal of the Royal United Services Institution,* 1884 (Volume 127), 925-940. See also – for a more general description of the conflict at Plevna rather than a tactical analysis, Francis Welch, "Military Notes Round Plevna and on the Danube, During December 1877 to January 1878," *The Journal of the Royal United Services Institution,* 1878 (Volume 95), 328-341; and "The Combat at Plevna," *The Journal of the Royal United Services Institution.* 1878 (Volume 96), 745-756.

1882.[102] Another example by Marsh, written in 1891, focused on the effect of wounds inflicted using different calibre weapons, which is unsurprising as he was the Surgeon-General of the Army Medical Staff.[103] The same year, however, Benson wrote a comprehensive (as well as prize winning) article which moved beyond a narrow technical discussion to the implications of improved rifles, to conclude that "a serious frontal attack over open ground, against infantry in position, unless enormous superiority in artillery is obtained, will hardly be attempted in future."[104] He concluded, like C. B. Brackenbury, that the altered conditions of war would require more highly trained troops, greater fire discipline and more staff officers.[105]

It is clear from Benson's paper, and others of the time, that it was well understood that all armies would have to be re-equipped with magazine rifles to maintain parity with their neighbours and rivals. In 1912, in the *Journal of the United Services Institute of India,* Freeth moved on to the next logical development in rifles, which was to adopt fully automatic models. Early models were only to be accepted into service in the First World War, and then usually only as supplementary weapons to soldiers armed with rifles, but he made the telling point that "history has demonstrated that the moral influence bestowed upon an army by its possession of a superior weapon, is an asset which no country can afford to neglect."[106] He recognised that both the physical and morale benefits of improved weapons would mean that they would inevitably be adopted.[107] His article did not discuss the effect of these tactical changes on war at a strategic level, and indeed assumed that it would continue as before, albeit with a need for altered tactics and improved discipline. Military and civilian articles shared a recognition that war had been altered by the new infantry weapons, but the former restricted themselves

[102] G. V. Fosebery, "Magazine Rifles," *The Journal of the Royal United Services Institution,* 1882 (Volume 116), 456. Fosebery had an interest in technical matters, as he wrote the monograph of using phonographs for recording information in 1889.

[103] T. A. Perry Marsh, "Magazine Rifles – A Military Prospect," *The Journal of the Royal United Services Institution*, November 1891, 1167-1179.

[104] G. F. Benson, "The Tactical Operations of the Future," *The Journal of the Royal United Services Institution*, April 1891, 417.

[105] Benson, "Tactical Operations," 434.

[106] C. J. D. Freeth, "Automatic Rifles," *Journal of the United Services Institute of India*, Vol XLI, 1912, 345.

[107] Freeth, "Automatic Rifles," 345.

to managing change, while the latter saw more clearly the potentially apocalyptic consequences of industrial war.

Another parallel with the civilian periodicals is a reduction in the number of articles which are concerned with improved firepower after 1900, at which time there was a burst of interest in tactics because of the South African War; but afterwards very little was published along the lines of Benson's article.[108] There was some interest in the Russo-Japanese War, as the cavalry reports indicate, but these were narrowly focused on the conflict and not on any wider consideration of the likely character of a future European war. The particular and real nature of the conflicts in South Africa and Manchuria drove away broader speculation on the future of war, in both the military journals and the civilian periodicals. There are parallels between the articles on the three arms and those on technical advances: change is acknowledged but not to the point the fundamental practice of war might be changed. The conservatism of the writers is evident in the way new developments are controlled and bounded, and in the case of the cavalry resistance to change manifests itself as special pleading, finding excuses for poor performance in contemporary wars through terrain, training or circumstance. The effect of new weapons was discussed widely in the military journals, but never allowed to attack the foundations of military practice.

Another parallel point must also be made. For all the measured discussion of the effects of new rifles on tactics, as illustrated by the papers of Brackenbury and Benson, the South African War was still a shock to the Army, which found that it has to change its formations and doctrine to avoid crippling casualties when attacking Boer riflemen. Although this can be read as simply the effect of military conservatism, the care with which tactics, formations and training were discussed shows that this view is too

[108] Bloch had two papers published in the *RUSI Journal* on the South African War which dealt squarely with his theories on a European War, discussed in Chapter Seven. See Jean de Bloch, "The Transvaal War: Its Lessons in Regard to Militarism and Army Re-Organisation (Part I)," *The Journal of the Royal United Services Institution,* December 1901, 1316-1344; and Jean de Bloch, "The Transvaal War: Its Lessons in Regard to Militarism and Army Re-Organisation (Part II)," *The Journal of the Royal United Services Institution,* November 1901, 1413-1451. Maude, a vigorous opponent of Bloch in the periodicals, was also present, writing about the War ; see F. N. Maude, "Continental Versus South African Tactics: A Comparison and Reply to Some Critics," *The Journal of the Royal United Services Institution,* March 1902, 318-354.

simplistic. Instead, the speed with which rifles had changed, even between the Russo-Turkish and the South African Wars, had blindsided the military theorists. Rapid technological change had proved too much for the existing structures of the Army to manage, even though the *RUSI Journal* continually engaged with tactical matters. The future had rushed forward so rapidly that it overwhelmed the Army's best efforts to adapt to change.

Strategic Thinking

It is possible to find articles in the *RUSI Journal* which do contain more speculation on the future of war – they are rare, but significant in that they show that some military writers were alive to the possible effects of change. This final part of the chapter discusses a number of examples, including some pieces by senior military officers, who were perhaps allowed more freedom to express such views, given their stature within RUSI. It also discusses the way German military theorists were reported in the *RUSI Journal*, as they often looked at war in a more comprehensive way than their British counterparts. Before turning to these, however, it is important to note that the *RUSI Journal* did discuss wargaming around the turn of the century, which reveals much about the intellectual climate in the British military of the time. As discussed in Chapter One, wargaming had been taken seriously by the German Army since the early nineteenth century for future planning. While they were played in Britain, as demonstrated by articles in the *RUSI Journal*, interest in them was limited, as shown by the fact that the seven articles are grouped around the latter two decades of the nineteenth century, with one in the late 1880s and six in the 1890s.

The earliest paper, from 1888, was presented with C. B. Brackenbury in the chair and contained a statement that "the only war game now found to be practicable is a manoeuvre on the map conducted by an umpire"[109] The reason was telling – the author considered that there had been a breakdown of recognised rules with the coming of

[109] H. Spencer Williams, "The Practical Value of the War Game," *The Journal of the Royal United Services Institution,* 1888 (Volume 143), 74.

modern firearms. There was also a feeling in the lecture that the wargame was being neglected, and Major General Moncrieff stood up for its value at the end in the debate, which is to be expected as he was President of the Technical and War Game Society.[110] Three articles from a few years later show that the Home District, at least, were conducting wargames with regularity, reporting that 38 officers took part in one as members of the District Tactical and War Game Society in 1891.[111] The wargame in this case was not on a tabletop, but instead of what Satterthwaite, the author, considered a novel form, the 'war game in the open':

> various methods of acquiring tactical knowledge in peace-time have been practised – manoeuvring with troops, war games on the map, the study of campaigns from books and lectures and to these must be added the war game in the open.[112] Satterthwaite reported again on a smaller game in 1892, this time with a battalion.[113]

These games were conducted in terms of facing an invasion, as was a later war game in the field reported in 1893.[114]

Of a different sort were two articles relating to the Jane naval wargame, with the first being a description of it by its eponymous inventor. He was clear that its value lay in the principle that, unlike exercises, "the enemy is doing something at the same time."[115] He argued that it could familiarise naval officers with the characteristics of ships from opposing navies and illustrate the principles of combat, and covered its use by the

[110] Williams, "Practical Value," 79.

[111] E. Satterthwaite, "The Late War Game in the Open," *The Journal of the Royal United Services Institution*. July 1891, 771.

[112] Satterthwaite, "Late War Game," 771.

[113] E. Satterthwaite, "A Description on the Reconnaissance Work Undertaken by the home District Tactical and War-Game Society in the Summer of 1891," *The Journal of the Royal United Services Institution*, January 1892, 35-40.

[114] "Home Office District Technical and War Game Society," *The Journal of the Royal United Services,* November 1893, 1226-1241.

[115] F. T. Jane, "The Jane Naval Game," *The Journal of the Royal United Services Institution,* February 1899, 148.

Russian and Japanese navies.[116] He described the Russian game as 'strategic' but from the description it corresponds more closely to an operational or grand tactical game, and that is a feature of all the games described; they are not at the level of simulating a war, but in looking at tactical or ship actions. In the debate which followed Jane's paper, pessimism was expressed that only three British naval officers had shown an interest in the game, although there were reportedly game sets in many ships."[117] Jane suggested wryly that "the British Navy, as a whole, is opposed to anything that seems to smack of theory."[118] Another year on, and Captain King-Hall described a naval game along similar lines, although he did not say who had produced it, or for which navy.[119] The relative lack of articles shows that land and naval games had garnered only peripheral interest from serving officers. Even when they were practised, those mentioned are specifically tactical in nature, or operational at the highest level, and not concerned with gaming at a strategic level. Like the articles on future war, they lack the vision to examine how new weapons might affect war at a level beyond the tactical.

The last article to mention wargaming is a piece by Major General Webber, and is more interesting, as it suggests a programme of Army reform based on the lessons of the South African War, and began by stating that "my contention is that the scientific study of warfare during the latter half of the nineteenth century has lagged far behind the advance in knowledge which the world had made in the same period." [120] Webber suggested that material advances had outstripped those of personnel and organisation, and regarded wargaming as a tool for interpreting future conflict, while being critical of its application by the British army[121] Webber considered that increasing range in warfare was a revolutionary development, such that the organisation and tactics of

---

[116] Jane, "Naval Game," 159.

[117] F. T. Jane, "Tactics in the Jane Naval War Game as Exhibited by Various Navies," *The Journal of the Royal United Services,* March 1900, 252.

[118] Jane, "Tactics," 252.

[119] G. F. King-Hall, "New Naval Tactical Game," *The Journal of the Royal United Services,* October 1900, 1187.

[120] C. E. Webber, "Army Reform Based on Some Nineteenth Century Lessons in Warfare," *The Journal of the Royal United Services,* April 1901, 378. Webber also wrote a piece later in the year advocating the need for an Advisory Board for the Army; see Major-General C. E. Webber, "Army Reform: The Necessity for an Advisory Board," *The Journal of the Royal United Services,* September 1901, 1037-43.

[121] Webber, "Army Reform," 379.

armies would break down when put to the test of a general war.[122] He specifically mentioned Bloch's analysis of future war and, while he was not entirely convinced by his arguments that modern warfare would refute the lessons of the past, considered him to have adopted a scientific approach to its study.[123] Webber's statements are more surprising given his senior rank, and his article is unusual in the *RUSI Journal* for its forward looking attitude. Once again, technical descriptions were welcomed in the *RUSI Journal*, but wider methods which might be described as 'scientific' were not.

The contrast between the faltering British response to wargaming and that of Germany is telling. Schlieffen used wargaming, alongside staff rides, and exercises, to test his plans for invading France in the first decade of the twentieth century, as part of a more professional German approach to wargaming.[124] Although the *RUSI Journal* indicates a level of intellectual engagement with military affairs, there is an undercurrent of hostility towards approaches such as wargaming. To be fair, British wargames were certainly carried out, and Morgan-Owen notes that it was a game conducted at the Staff College which led to the decision to commit the BEF to Europe.[125] What is lacking is any great discussion of the subject in *The RUSI Journal*. [126]

Given their perceived pre-eminence in warfare, writers in the *RUSI Journal* often drew on German sources, or published translations of long pieces by German writers on the modern conditions of warfare, which exhibit something of a love-hate relationship with their military rival and its preeminent army. In 1887, for example, Lonsdale Hale, a regular contributor to the *RUSI Journal*, published a large section of Goltz's *Nation in*

[122] Webber, "Army Reform," 386.

[123] Webber, "Army Reform," 379.

[124] John Curry, ed., *Peter Perla's The Art of Wargaming: A Guide for Professionals and Hobbyists*, (Amazon: 2011), 51.

[125] David Morgan-Owen, *The Fear of Invasion: Strategy, Politics, and British War Planning, 1880-1914* (Oxford: Oxford University Press, 2017), 121.

[126] H. G. Wells' published a work entitled *Little Wars* in 1913, setting out how to play a war game intended for amusement. As Travers makes clear, Wells also saw wargaming as inadequate in the British Army to manage the conditions of modern warfare. Given that wargaming became a core discipline of Operational Research after the Second World War, with an emphasis on testing new tactics and technologies, Wells can be seen as one of the precursors of a new way of thinking about future war. T.H.E. Travers, "H.G. Wells and British Military Theory 1895-1916," in *War and Society: A Yearbook of Military History*, edited by Brian Bond and Ian Roy (London: Croom Helm, 1975), 79.

Arms in 1887. A. J. Echevarria describes this work as Goltz's most influential book, and it centred on the argument that winning modern wars would require the militarisation of the whole of society.[127] It was also, inevitably, concerned with future war and Goltz was clear that, "technical science…has also placed in the soldiers hand new weapons, with which he produces effects never dreamt of his father."[128] Although based on historical analysis, he appreciated the changes which had come over warfare, including the strategic importance of railways, the increased scale of battlefields because of the range of modern weapons, and the impact of modern rifle fire.[129] His approach acknowledged that change has happened, but for all its scope, like so many contemporary military writers, did not consider *future* change: there is no discussion in *Nation in Arms* of how still more powerful artillery, rifles and machine guns might alter tactics. Social Darwinist in outlook, and rather apocalyptic, Goltz's has a bleak outlook on the effects of a long war:

> Economic resources will break down before the armies are exhausted; for instance, operations in France must be very long drawn out. A war against Russia will demand several campaigns before arriving at any result. We may predict that wars cannot terminate other than by the complete destruction or the exhaustion of both combatants.[130]

It is therefore full of practical suggestions to prepare the German people, marshal the resources of the nation and deploy them effectively in war, although Goltz did not predict *how* a long war would be fought in the future. In a sense it was a response to the 'dread' of war, calling for preparation to weather the storm, and allowing Germany to emerge successfully from such a conflict. The very end of the extract selected by Hale was a paean to war and the ability of the German nation to triumph in conflict.[131] Hale

---

[127] A. J. Echevarria, *Imagining Future War: The West's Technological Revolution and Visions of Wars to Come 1880-1914* (London: Praeger Security International, 2007): 21.

[128] Wilhelm Leopold Colmar von der Goltz, *The Nation in Arms* (London: W H Allen, 1887): viii.

[129] Goltz, "Nation in Arms," x.

[130] Quoted in Bloch, "The Transvaal War (Part II)," 1316.

[131] Lonsdale Hale, "A Sketch of War as it Will Be," *The Journal of the Royal United Services Institution,* 1887 (Volume 138), 164. He was even more dismissive of the American Civil War, considering that the large scale

does not comment on the sentiment, but did state in his introduction that he did not see Britain as a 'nation in arms', bearing in mind that in 1887 Britain did not consider intervention on the Continent as either likely or desirable.

Nine years after Hale's translation, Ware reviewed the fourth edition of Captain Hoening's *Untersuchugen uber die Tactics der Zukunft* over three articles, including translations of large sections of the text. The first article is the most interesting, as it discusses the general nature of war, with the author drawing lessons from the Wars of 1866 and 1870, although he also referred to events in the recent Chilean (sic Chili) War.[132] Although Hoening expressed the commonly held view that modern weapons would make it more difficult to cross the fire zone, his opinion was that "a fixed moral will or determination to overcome it at all costs is required."[133] Such opinions were typical of the German military and evident in their criticism of the British conduct in the South African War, as described in Chapter Four. In Hoening's view, battles could only be decided by closing with the enemy - with the translator Ware commenting that his views reflected the intensely German philosophy of warfare of the author.[134] Putting aside what Ware rightly considered to the nationalistic tone of the book, the article essentially 'ticks off' all the tactical impact of improved defensive fire, and yet failed to understand the concomitant strategic change. Hoening had adopted an evolutionary approach to tactics but insisted on the continuing relevance of previous wars and historical analysis. [135]

A further German piece offered the *RUSI Journal* a more comprehensive view of future war, through the translation and summary of a piece originally published by General

---

cavalry raids of that conflict could not be conducted in Western Europe due to differences in geography and the culture of the cavalry, Hale, "A Sketch," 187.

[132] W. A. H. Ware, "The Tactics of the Future," *The Journal of the Royal United Services,* March 1896, 277.

[133] Ware, "Tactics," 278.

[134] Ware, "Tactics," 286.

[135] See also C. B. Mayne, "The Difficulties of the Tactical Defensive, and How to Meet Them," *The Journal of the Royal United Services Institution,* September 1896, 1086. Mayne wrote this article in the same year and stated that the British Army had tended to favour defence on account of the small size of its regular army, although he invoked German sentiments when he evoked physical, mental and 'moral' energy. Like his German contemporaries, he also based his views on the wars of 1866 and 1870, as well as Plevna and Napoleonic warfare.

Rothe in the *Deutsch Review* in November 1902. Aside from presenting a widely recognised picture of modern warfare, he added that "practical knowledge cannot dispense with the scientific."[136] This, along with an assertion that technical knowledge and training would be required, probably reflected Rothe's status as a General of Artillery, a more technical arm than the infantry or cavalry.[137] His piece was really unusual, however, in that he recognising some of the challenges to war which Goltz, Bloch and Angell, the peace campaigner, had raised, such that "for while a nation in arms is employing its whole strength to ensure victory, it is threatened by the danger that its industries will be languishing, its trade suffering and passing into the hands of rivals, its civilising mission at a standstill."[138] German military writers were engaging, at least to a limited extent, with the potentially damaging effects of a long war, while their British contemporaries tended not to discuss strategic issues at all.

One of the themes in the German writing was also the use of historical analysis to attempt prediction of the future. Hale, who translated *The Nation in Arms*, agreed with their sentiment and regarded it as "a necessary part of the training of every officer, senior or junior, old or young." [139] Interestingly, he advocated the teaching of deliberately archaic military examples to avoid confusion in those being taught regarding modern warfare; in other words, teaching Napoleonic warfare would be more dangerous to modern officers than instructing them on ancient conflict, due to the formers apparent closeness to modern war.[140] He illustrated this by saying that "do not the field days at Aldershot and manoeuvres show conclusively that it is the absence of realisation of this power of modern firearms…that is the cause of the tactical operation

[136] Rothe, "The Conditions Regarding the Efficiency of Armies in the Present Day," *The Journal of the Royal United Services Institution,* March 1903, 293.

[137] Rothe, "Conditions," 296.

[138] Rothe, "Conditions," 289.

[139] Lonsdale Hale, "The Professional Study of Military History," *The Journal of the Royal United Services Institution,* June 1897, 691. Hale referred to a previous article, which advocated the teaching of military history to the more general population, although this was more from what may be called moral reasons than practical teaching to military students, see T. Miller Maguire, "The National Study of Military History," *The Journal of the Royal United Services Institution,* May 1897, 598-622.

[140] Hale, "Professional Study," 695.

being a military anachronism?"[141] In the debate which followed his lecture, however, J. F. R. Henderson argued using an example with general Sheridan (from the American Civil War) that the eternal principles of strategy still held.[142] It is indeed a feature of the articles in the *RUSI Journal* that when strategy is discussed, it is usually to state that it is based on unalterable and unchanged principles, unlike tactics, which were seen as having had to change in the face of improved weapons.

There are only a few examples of articles presenting truly strategic thinking about the future. Three different pieces are worth examining, to counterpoint their imagination in the face of the conservatism exhibited by most writers in the journal. The first is to be found in an article by Captain Harrison of the 1st Volunteer Artillery in 1897, which reassessed the possibility of the invasion of England and in particular, "to examine how far new discoveries – or new possible combinations of foreign powers – may have altered or modified these data." [143] Harrison explicitly recognised the need to verify the assumptions upon which an analysis of invasion had been considered, and went on to question if steam and electricity would be favourable to the attack or defence. Harrison went on to report on primary research at the London docks, where he had determined the capacity of modern steamers to embark troops. He concluded that 40,000 troops a day could be embarked, and used the example of transport to the Crimea and Mexico (by the French) as proof of the ability of steamers to carry large armies, concluding that "the introduction of large steamers has rendered the transport of military expeditions an easier option than it was in former days.[144]

Continuing his theme, Harrison analysed the numerical strength of the defending forces in Britain, before moving to cite the difficulties faced by part trained troops (such as the British volunteers) in the American Civil War, Russo-Turkish War and Prussian Wars.[145] While being pessimistic as to their value, he concluded that the use of trains and the

[141] Hale, "Professional Study," 693.

[142] Hale, "Professional Study," 707.

[143] W. H. Harrison, "The Invasion of England: Should London be Fortified," *The Journal of the Royal United Services Institution,* February 1897, 172.

[144] Harrison, "Invasion," 174.

[145] Harrison, "Invasion," 179.

telegraph would allow the concentration of defenders more effectively, by stiffening part trained troops. Finally, he used further historical analysis to suggest that building a 'polygonal system' of defences around London would be valuable, including estimating costs compared to the £12m spent on protecting dockyards. The debate which followed clearly indicated that the French were still seen as the enemy at this time, and Vice-Admiral Colomb (one of the authors of *The Great War of 189*-), as Chair, was critical, stating that the money spent on such defences would mean that the Navy would be neglected. The actual validity of Harrison's argument is, for the purposes of this discussion, less important than his approach. He set out a concept for defending Britain and supported it with historical and financial analysis, which are a rare example of an approach which would become commonplace in the later twentieth century. It is also noteworthy that he was also looking at least a decade into the future, as it would not be possible to build such a series of fortifications over a shorter period. He also recognised the impact of technical change (railways, telegraphs and steam power for ships) on strategic issues, enabling the more effective concentration of defensive forces.

Another article which discussed the defence of Britain was even more radical than Harrison's work, and came from a senior officer, Vice-Admiral Campbell, in 1908. He began by emphasising (unsurprisingly) the primacy of the Navy in defending against invasion, but then said that his secondary purpose was to advocate "the necessity of a carefully prepared, rapid system of concentration on any spot chosen by the invader for landing.[146] What is unusual is that his suggestion was not to use railways, but to build a network based on a new and untested system – the Brennan monorail.[147] This was a novel concept set out by the Australian designer Louis Brennan, who had developed a prototype where gyroscopically stable cars ran along a single track, or even cables.[148] The monorail was never adopted for fears of its stability, but garnered much public interest at the time and interested H. G. Wells, who assumed it had been widely adopted

[146] Sir C. Campbell, "The Training, Organisation, and Rapid Concentration of a Force to Resist Raids or Invasion by the Strategical Use of the Mono-Rail," *The Journal of the Royal United Services Institution*, December 1908, 1612.

[147] Campbell, "Training, Organisation and Rapid Concentration," 1614.

[148] Peter Bowler, *A History of the Future: Prophets of Progress from H.G. Wells to Isaac Asimov* (Cambridge: Cambridge University Press, 2017), 97.

in the future history of his novel *The War in the Air*, as discussed in Chapter Six. As if this were not enough, Campbell went on to suggest an astonishing list of potential improvements to not only the Navy, but for the Armed Services as a whole, including cutting a canal between the Forth and Clyde on the scale of the Kiel canal in Germany; a tube rail to the Continent; internal combustion on battleships (also mentioned in Wells' *The War in the Air*); improved international arbitration and the conquest of the air.[149] In contrast to the normally conservative articles in the journal, each one of these points is worthy of note, and taken together they form a startling contrast to articles typical of the *RUSI Journal*.

If Harrison was using something close to what would come to be called operational research in his assessment of defending Britain – in terms of calculating the carrying capacity of ships for invasion, then Campbell is delivering an examination of possible technologies akin to futures studies, looking at how radical new technologies could transform warfare. These are, however, the exceptions which prove the rule – they stand out as unusual and were not part of any wider move by either the *RUSI Journal* or the British military establishment to examine the future. Like wargaming, such investigations of the future lay on the periphery, and were not part of official thinking. One writer did, however, identify the value of thinking about the future, in an article from 1897. The talk was given by Vice-Admiral Colomb, introduced earlier, and was on the future of the torpedo, which was a cause of concern to the Royal Navy as it was seen as having the potential to destroy fleets of battleships at relatively little financial cost. Before reaching the technical part of his discussion, however, Colomb discussed the tension between conservatism and innovation in a technically precocious age; reminding RUSI that:

> It is peculiarly the function of this Institution to watch all changes in the material with which it is intended to carry on future war, to discuss their nature and character, and to endeavour to forecast their exact meaning. Except in the open arena of this theatre, it is difficult to suggest where such a function – of such

[149] Campbell, "Training, Organisation and Rapid Concentration," 1617.

> immense value to the State – can be usefully exercised. All those who have been concerned in the production of new elements of force, or in the modification of old ones, have natural and proper prejudices in favour of the new descriptions of material.[150]

Colomb was asking the question of where speculation on future war should be situated, beyond RUSI itself, and recognising that such a venture could be of great value. He went on to suggest that there were two responses to change, at least as extremes. Firstly, that certain proponents adopted "a certain almost fixed hypothesis of the character of the war, into which they endeavour to fit the new developments of material and to discover if they are of a permanent or temporary character."[151] Secondly, others adopted a position that was "enthusiastic – prophetic – support of material changes, the pressing forward and universal adoption of which becomes the be-all and end-all of their advocacy."[152] Colomb was stating that neither extreme view was, in itself, sensible. Looking at the articles from the military journals, the vast majority took a conservative view, and 'prophetic' views were rarely raised, and quickly dismissed if they were. In his subsequent evaluation, it is probably fair to say that Colomb erred more towards conservative, rather than prophetic, analysis, but he did put forward predictions with some accuracy, suggesting the imminent coming of the 'all big gun' battleship, first built by Britain in 1905 with HMS *Dreadnought*.[153] What is more striking, however, was that Colomb was specifically suggesting that there would be value in establishing a research body to look at new technologies, which would be "of such immense value to the State."[154] Such a body would undoubtedly produce studies such as those of Harrison and Campbell, but nothing like it would come into existence until after the First World War. The interrogation of the future by systematic means would have to wait: and of the two extreme points given by Colomb, the *RUSI Journal* almost always veered towards the

[150] P. H. Colomb, "The Future of the Torpedo," *The Journal of the Royal United Services Institution,* December 1897, 1465.

[151] Colomb, "Future," 1466.

[152] Colomb, "Future," 1466.

[153] Colomb, "Future," 1467,

[154] Colomb, "Future," 1465.

conservative, seeking to fit new technologies into a fixed conception of war, as he put it in his article.

Conclusion

There were a huge number of articles on the way technical advances could affect the conduct of war in the *RUSI Journal* and the *Cavalry Journal*. The vast majority were concerned with contemporary war, or in the near future, and while there was intense interest in technical developments, such as new rifles, artillery, motor vehicles and aircraft, conservatism dominated the discussion about their impact on war. The general tone of debate is that existing tactics could be modified to continue the effective prosecution of war, regardless of the increased power of the defensive. What Travers characterised as the use of 'moral' means to overcome technical barriers is evident, and nowhere clearer than in discussions of the role of the cavalry, which are filled with special pleading to account for its failures in recent wars. Of course, the British Army existed to prosecute wars, and it is not surprising that military writers should be concerned with practical matters and focus on how to continue to fight successfully, although they showed a realistic appreciation of the challenges they would face in the future. What was lacking was real discussion of what a war might mean for Britain, and as Morgan-Owen says, "Britain's political leadership did not articulate or endorse a coherent vision for how it envisaged bringing a future Great Power to a conclusion before the outbreak of the First World War."[155]

Where there is speculation in the *RUSI Journal*, it is often given by junior officers, and the ability to comment does not necessarily translate into action; as Bowman and Connelly say of RUSI, "many of the most acute criticisms were made by men of relatively low rank who were allowed to express their ideas freely, but had no power to follow them through."[156] Even in the pieces by more junior writers, the received opinion is that new technical advances will augment or supplement current practice, but not revolutionise

[155] Morgan-Owen, "The Fear of Invasion,"6.
[156] Bowman and Connelly, "Edwardian Army," 105.

the practice of war. The cavalry, for example, wrote about aircraft and motor vehicles helping their role, but were emphatic that they could not replace mounted troops on horseback. There was no speculation as to what would happen in a general European War, in contrast to the writings of German writers such as Goltz, although even they fell short of a full analysis of a future European War.

A few writers, such as Harrison, Campbell and Colomb, did put forward articles that examined the future in new ways, but they are rare. RUSI was a conservative body and the absence of strategic discussion is paralleled by a dearth of views about how future technologies might affect war. These failures reflect the speed with which change had come over military matters since 1870, leading to a culture which lacked the means – that they would have characterised as 'scientific' – to properly interrogate the future. The question posed by Colomb in his article on the torpedo is telling – he saw the value of a body to examine future developments, but was unsure of how it could be established. His remark recognised the need to develop the means to systematically interrogate the future, but it was only after the First World War that the culture, desire or means existed for such methods to be adopted.

Chapter Six Stories of War

The period between 1870 and the First World War witnessed an outpouring of fiction dedicated to imagining future war.[1] Previous chapters have demonstrated the significant interest shown by periodicals and military journals in the future of war over the period, so it is essential to contextualise their thinking by evaluating some of the contemporary major works of 'fiction of the future', as Wells' termed it. Previous chapters have highlighted a dichotomy between those commentators who saw new technologies as only modifying the conduct of war, and those who thought it represented a profound disruption with the past. The former were in the majority, especially among military writers, but a significant minority wondered at the impact of new weapons and came to fear what a future European Great War might bring, especially in the 1890s. This chapter demonstrates that this dichotomy was not only present in the fiction of the time, but that writers deliberately put forward one or the other position. Those who wrote accounts of future war to warn of the threat of invasion presented conflict as reassuringly familiar and unchanged from the wars of the nineteenth century. In contrast, those like Conan Doyle, who were critical of the military establishment, wrote fiction which deliberately emphasised how technology could overthrow the conventional practice of war.

The chapter also shows that the vast majority of fictional accounts were focused on the near future, as were the commentaries of military and civilian writers in the periodicals.[2] Accounts of invasion grounded themselves in the near future to provide authenticity, but even amongst fiction which imagined the dramatic effect of new technology, the focus tended to be on the day after tomorrow, and not decades in the future. Again, this usually reflected an attempt to make the fiction more convincing, but it left engagement with the future as something tentative, reinforcing the central theme

[1] I. F. Clarke, *The Tale of the Next Great War, 1870-1914: Fictions of Future Warfare and of Battles Still-to-come* (Liverpool: Liverpool University Press, 1995), 1, regards the 1870s as, "the alpha point of modern futuristic fiction, when a new college of prophets and predictors first began to describe the new machines, the new societies and the new wars that would follow."

[2] Christian K. Melby, "Empire and Nation in British Future-War and Invasion-Scare Fiction, 1871-1914," *The Historical Journal* 63, 2 (2020): 390; Melby defines stories of the time as looking at the near or distant future, but it is the former which greatly predominates.

of this thesis, which is that the interrogation of the future, and especially the military future, was immature during the period. As further illustration of this point, where progress was the subject of an author's interest, it was usually portrayed through the lens of a single technological innovation. It is important to recognise, of course, that different writers wrote their visions of the future not necessarily to predict the future, but to present warnings, critiques of current practice – and for commercial gain.[3] Notwithstanding their motivations, this chapter makes the point that writers faced huge complexity when imagining a future, and that ways of understanding the likely impact of new technology were themselves embryonic.

The works of fiction analysed in this chapter have been drawn from the lengthy treatises on the portrayal of future war written by I. F. Clarke and A. J. Echevarria, as discussed in Chapter One. Their taxonomies are a useful starting point for framing the analysis, with Clarke drawing a distinction between those stories with a political view of the future, and those with a technological view of the future.[4] From Chesney onwards, who he considers to have established the model for realistic depictions of modern war with *The Battle of Dorking*, many stories were plausible accounts of diplomacy, alliances and war as the continuation of politics by other means. In contrast, writers such as Wells and Conan Doyle wrote stories focused on technological innovations and their disruptive effect on warfare. Echevarria distinguishes between military writers, who he sees as more conservative, and civilian writers, who he sees as more imaginative. This is a position partly supported by the conclusions of Chapter Five, with articles in the military journals tending to be less speculative than the periodicals, although this chapter will show that 'imaginative' fictional writing also generally operated within a narrow framework.

The nine works assessed in this chapter have all been are identified as historically significant, immensely popular at the time, or both. The first part of the chapter looks at four works which are political treatments of the future, and being largely disinterested

[3] Melby, "Empire and Nation," 397.

[4] I. F. Clarke, *Voices Prophesying War 1763-3749* (Oxford: Oxford University Press, 1992).

in the impact of technology in the future, or even in the present. The first of these is *The Battle of Dorking*, was published in 1871, with the remaining novels all published from 1890 onwards, as interest in future war increased. All are accounts of either a great war in Europe, examples of invasion literature (like *The Battle of Dorking* itself), or both, and they comprise *The Great War of 189-* (1891-2), *The Great War in England in 1897* (1893) and *The Invasion of 1910* (1906).

The second part of the chapter explores fiction which saw future war as being profoundly affected by 'science' and new invention. Two are concerned with the use of mechanical vehicles to break trench deadlock, Wells' *The Land Ironclads* (1903), and C. E. Vickers' *The Trenches* (1908); and a third with submarine warfare, Doyle's *Danger!* (1914). The final example is a rare look into a more distant – and disturbing – future by Jack London, *The Unparalleled Invasion* (1910). The stories are all centred on new technologies that mark a profound break with the past, generally leading to a wholesale change in the conduct of war. Partly for dramatic effect, and through them all being short stories, the technologies are successful to an unrealistic extent, being deliberately focused on a single disruptive advance which usually has a shattering impact on the conventional conduct of war.

The third and final part of the chapter looks at a book with a very different take on the future, Wells' *The War in the Air* (1908). Although this shares, with his *The Land Ironclads*, a focus on technical advance, it presents a coherent future history centred around the dizzying progress of technology, marking it out as a different exercise to the other works of fiction discussed in this chapter. It also presents future war as completely different to the present, showing it as uncontrollable and cataclysmic. The analysis of the book is counterpointed by a discussion of his more famous *War of the Worlds* (1898), which shares many of Wells' views on the power of technology on war. As with his *Anticipations*, Wells' idea of constructing a future through systematic analysis is striking and novel; and the reality of his future is less important that the way it has been constructed.

Political Futures

The story that initiated invasion literature was written after the devastating German victory over France in 1871: *The Battle of Dorking: Reminiscences of a Volunteer* by George Chesney, then a serving colonel who was to reach the rank of general later in his career. The work was originally published in *Blackwood's Magazine*, before appearing in pamphlet form and then in book form.[5] It prompted a response from Prime Minister Gladstone and was still referenced as the starting point of the invasion genre in 1900.[6] The story tells of an invasion of Britain by the highly professional German Army (although they are not named), who are quickly victorious against their ill-prepared opponents, including the brave but ill-equipped volunteers who are the focus of the story. The novella is, like many later accounts of invasion, a polemic against Britain's inadequate defences and military complacency. The narrator complains that the nation had gained recent advantage only through – in a disparaging description - importing raw materials and re-exporting manufactured goods.[7] Although Britain was, at the time, close to its apogee of global power, Chesney was more concerned with attacking the moral character of the nation rather than its balance of trade. He was certainly not alone in finding the emergence of Germany as the leading power in Europe to be disconcerting, changing the balance of power and potentially affecting Britain's policy of relative isolation from Continental politics. Clarke considers that Chesney's timing was all – he tapped into a concern over the nation being ill-prepared, as shown by pamphlets and articles of the time, and his work also coincided with a growing literary response to change.[8]

The war itself is centred on the land battles in Britain, following an invasion which relies upon the Royal Navy being rendered ineffective due to being scattered on colonial duties

[5] Biographical details from *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for George Chesney (1830-1895), https://doi.org/10/1093/ref:odnb/5231.

[6] Clarke, "Voices Prophesying," 34; for the mention of Gladstone, and Clarke, "Voices Prophesying," 39; for the mention of its continuing fame in 1900.

[7] George Tomkyns Chesney, "The Battle of Dorking: Reminiscences of a Volunteer," in I. F. Clarke, ed., *The Tale of the Next Great War, 1870-1914: Fictions of Future Warfare and of Battles Still-to-come* (Liverpool: Liverpool University Press, 1995), 28.

[8] Clarke, "Voices Prophesying War," 48.

and then, when it faces the German fleet, being largely sunk by underwater mines.[9] Although this dramatic event is outwardly an example of new technology destabilising the balance of power and neutralising the most powerful navy in the world, it is really an excuse to enable the invasion to take place. Similar such mechanisms are used in later tales of invasion, although Chesney was also making a point about the potential of new advances in weaponry, commenting on the mines that "the Government, it appears, had received warnings of this invention; but to the nation this stunning blow was utterly unexpected."[10] Contemporaries, however, remarked upon the weakness of Chesney's mechanism of removing the navy from play, recognising it for what it was: a means of enabling the invasion to occur.[11]

Once on land, the invasion causes a run on the banks and the fall of trading houses in the City, and the enemy swiftly moves twenty miles inland. At all points Chesney contrasts the clockwork professionalism of the invaders with the disorganised British defence, focusing particularly on the ineptitude of their mobilisation, including the hapless volunteers. Once battle begins, the descriptions echo combat as experienced in the Franco-German War, with skirmishers shielding attacking troops, dramatic cavalry charges and mounted officers leading infantry attacks.[12] To ground the invasion and add veracity, Chesney roots the battles in descriptions which would have been familiar to readers from the recent (real) war, and it is obvious that this future is imminent, with new technology only introduced to help neutralise the Royal Navy. The war ends quickly once London and the Woolwich Arsenal have been captured, and there is no last minute reprieve for the British defenders, as happens in many of the later novels of future invasion. It is also a swift war after the fashion of the Austro-Prussian and Franco-German Wars, as would have been seemed reasonable in the light of those two conflicts.

[9] Chesney, "Battle of Dorking," 34.

[10] Chesney, "Battle of Dorking," 35.

[11] "Review: The Battle of Dorking," *The Saturday Review*, May 6th, 1871, 563 and, "Our Defence," *The Illustrated News*, September 1871, 169.

[12] Chesney, "Battle of Dorking," 57

Britain is, however, forever diminished through defeat, and this illustrates an interesting feature of the novel. It is couched as a retrospective memoir 'of a volunteer' written some fifty years after the invasion – therefore imagining that it was composed in the 1920s, as the unstated date of the invasion would have been close to the time Chesney was writing.[13] Although this is only a framing device to emphasise the magnitude of the defeat, it does contain some elements of a future history.[14] For example, the defeat of Britain results in the stripping away of her colonies, with Canada and the West Indies going to the United States, Australia forced to separate, and India lost.[15] In this post-war world emigration has increased to become a norm, with the middle classes in particular leaving Britain.[16] The invasion also results in a collapse in trade and industry; worsened by the increasing cost of iron and steel, with production moving to America as it was no longer worth mining them in Britain.[17] Chesney also included interesting peripheral statements, such as the fact that "America was not the great power forty years ago that it is today."[18] Chesney included these elements of a future history to shock his audience and deliver a pessimistic forecast, and it is entirely political and economic, making no technological predictions. This is unsurprising in that Chesney was really emphasising the long term effects of the invasion, but the device is noteworthy. Melby concludes that the way this retrospective is couched points towards it coming from the way historical novels were constructed, borrowing their phraseology and changing it to a 'future historical' form. [19]

Th reception in the contemporary periodicals was noticeable; with *The Athenaeum* noting that in August 1871, the same year as its first publication, it had already reached its second hundred thousandth publication. [20] A month later and *The Musical Standard*

[13] Chesney, "Battle of Dorking," 27.

[14] The term 'future history' is thought to date to the 1940s and was definitely used by author Robert A. Heinlein as the title of one of his stories in 1941, several years after the publication of *The Shape of Things to Come* by Wells.

[15] Chesney, "Battle of Dorking," 72.

[16] Chesney, "Battle of Dorking," 28.

[17] Chesney, "Battle of Dorking," 72.

[18] Chesney, "Battle of Dorking," 31.

[19] Melby, "Empire and Nation," 397.

[20] "Literary Gossip," *The Athenaeum*, August 12, 1871, 205.

reported that its fame had seen that it was figuring in music, noting that it was a "celebrated story." [21] Some commentators were sceptical of its realism, such as *The Saturday Review*, but hoped it might help to frighten the public and highlight the defensive state of Britain.[22] *The Illustrated News* shared something of that scepticism, even mentioning a state of 'invasion panic', but then going on to more soberly discuss the defences of the nation.[23] In a pattern which was to follow, there was to be much ink expended on invasion in the decades to come, although this did not lead to real action from the Government, as emphasised in Chapter One.[24]

One of the most prominent accounts of a future war to follow Chesney was originally serialised in *Black and White* in 1891-92: *The Great War of 189-: A Forecast*, which sold well in Britain and was translated into several other languages.[25] It was not a piece of invasion literature, but instead a detailed imagining of a future European War, with its authors stating its purpose clearly:

> in the following narrative an attempt is made to forecast the course of events preliminary and incidental to the Great War, which in the opinion of military and political experts, will probably occur in the immediate future. [26]

The term 'immediate future' is telling as the novel was written during the period of fear of a European war identified in Chapter Three, when it was considered very likely indeed.[27] The panel of authors included three serving officers: Rear-Admiral Colomb (see Chapter Five for his contributions to the *RUSI Journal*), Colonel Maurice and Captain

[21] "Review: The Battle of Dorking," *The Musical Standard*, September 23, 1871, 258.

[22] "Review," *The Saturday Review*, 564.

[23] "Our Defence," *The Illustrated News*, September 1871, 169.

[24] Melby, "Empire and Nation," 391.

[25] A.J. Echevarria, *Imagining Future War: The West's Technological Revolution and Visions of Wars to Come 1880-1914* (London: Praeger Security International, 2007), 49.

[26] P. Colomb, J. F. Maurice, F. N. Maude, A. Forbes, C. Lowe, D. Christie Murray, and F. Scudamore, *The Great War of 189- : A Forecast* (London: William Heinemann, 1895 [First Published in 1892]), accessed on 23 January 2020 www.gutenberg.org, x.

[27] The use of the term is explicit: "we have long familiarised ourselves with the thought that the Great War of which the world has been in constant dread for some years….", Colomb, "The Great War," 2.

Maude (set to become a prominent military theorist and vigorous opponent of Bloch in later years), and their aim was to "conceive the most probable campaigns and acts of policy, and generally to give their work the verisimilitude and actuality of real warfare."[28] The work is epistolary, which adds to its realism, and contain incidents which are eerily prescient of the First World War, such as the attempted assassination of a Crown Prince in the Balkans – albeit a Bulgarian one – when his carriage is attacked by assassins.[29]

Like *The Battle of Dorking*, the focus of the novel is on political events, and the sequence of events that set it into motion are based on the alliances of the time, with Britain eventually entering the War on the side of the Triple Alliance (Germany, Austria and Italy) against Russia and France. Britain uses maritime force to land troops in the Balkans to intervene against Russia, as well as to land at Antwerp.[30] The war becomes global, with the French inciting unrest in Egypt (inciting a battle which foreshadows Omdurman), invading Sierra Leone, and Russia attacking India.[31] The war concludes with victory for the Triple Alliance and Britain, and the whole war happens in less than a single year, with little sense of a profoundly changed international order.[32] There is certainly nothing more than the most sketchy of future histories describing events beyond the end of the conflict, which is conventionally short and dramatic.

The impact of new weapons on warfare is, fitfully, addressed by the novel. As Chapter Five shows, there was intense military interest in the impact of more accurate and rapidly firing rifles, smokeless powder and machine guns in the military journals of the time. Such innovations are not, however, obvious from the description of a battle

[28] Colomb, "The Great War," 1. Vice-Admiral Colomb was a noted naval historian whose 1891 treatise was considered to be a 'scientific' treatment of history, although he was overshadowed by the works of his more famous American contemporary, Admiral Mahan. Colomb was also an enthusiast for war games. Biographical details from *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for Sir Philip Howard Colomb (1831-1899), https://doi.org/10/1093/ref:odnb/5981.

[29] Colomb, "The Great War," 11.

[30] Colomb, "The Great War," 227.

[31] Colomb, "The Great War", 248, for the French support for a Mahdist rising. Colomb, "The Great War", 280, for actions in Africa and India.

[32] Colomb, "The Great War," 225.

between French and German forces, when the fictional correspondent writes in a very traditional fashion, stating that he was about to see a Napoleonic battle unfold.[33] Subsequently, the drama of battle is evident, "as the troops approached [the French] guns, they formed line and came forward, their drums beating with the strictest discipline… for the bullets were flying in showers overhead, and men were constantly dropping."[34] In this 'great German victory of Machault' there are also successful cavalry charges against French guns, artillery duels and a general sense of battle after the fashion of the Franco-German War.

There is, however, a complete contrast between this and the description of the Eastern Front on May 7th, which must reflect the fact that different contributing authors wrote about distinct theatres of operation. To emphasise this point, the war correspondent in the East states that the "German Army of the Vistula has just inflicted on the Russians another Plevna."[35] As identified in Chapter Three, this battle was emblematic of the power of modern rifles and repeatedly mentioned in the periodicals through to the early twentieth century. The Russian attackers are massacred by magazine and rifle fire, and their last desperate bayonet charge fails when they encounter a barrier of barbed wire.[36] This wire, used in conjunction with searchlights in their night attack, leaves 10,000 Russian dead due to the "destructive effects of the murderous magazine rifle."[37] The account of war in the East also refers to the changing nature of warfare, such as the importance of seizing railheads, and the value of fortification with trenches.[38] There are references to the impact of smokeless powder on morale, by exposing troops to fire without cover, and the difficulty of executing command on extended battlefields leading commanders to delegate authority.[39] The Kaiser himself gives voice to these sentiments in a speech reported by a 'special correspondent', saying that "within the last few years the science of war has been completely revolutionised, and we are about to grapple with

[33] Colomb, "The Great War," 185.
[34] Colomb, "The Great War," 188.
[35] Colomb, "The Great War," 79.
[36] Colomb, "The Great War," 84.
[37] Colomb, "The Great War," 85.
[38] Colomb, "The Great War," 75.
[39] Colomb, "The Great War," 35.

military problems which never taxed the powers of our predecessors."[40] Critically, however, these tactical changes to war do not affect strategy or the outcome – the battlefield may have been revolutionised in the East (if not between France and Germany), but the war remains swift and decisive.

Novel technology is only touched upon only sparingly in the book. Like Chesney, this is undoubtedly deliberate, as grounding the fiction with current weaponry and tactics lent it credibility. Nonetheless, the authors allowed a couple of imaginary technologies to play a part. One is a fleeting mention of 'lance rifles' (seemingly a combined gun and lance) used in cavalry engagements in the East.[41] Another is the use of a French dirigible by the Russians to drop a "large dynamite" charge on the city of Varna, which they are besieging; although the correspondent present at the battle suggests that this move is more from desperation than a serious military tactic.[42] To prove his point, the action has no real impact on the war, and reads as merely an exciting distraction. These technologies have no effect on the war, any more than the barbed wire, improved rifle fire and trenches do on the war as a whole, which remains akin to those fought earlier in the nineteenth century.

One contemporary review, in *The Academy*, highlighted the widespread conviction that a European war was imminent, but was critical of the novel's approach, considering that it failed to reflect historical experience or military practice, and although it thought the tactical descriptions reasonable, did not feel that they showed anything new.[43] *The Saturday Review* was even more critical, noting the number of invasion stories which circulated, and suggesting sarcastically that in this case "they have let it all go, from Bulgaria to New Caledonia, war-balloons, torpedoes, electric-lights, lance-rifles – no expense has been spared."[44] These response indicate a weariness with the genre and criticism of what was perceived as hyperbole, although an imminent great war was seen

[40] Colomb, "The Great War," 34.

[41] Colomb, "The Great War," 72.

[42] Colomb, "The Great War," 228.

[43] "Review: The Great War of 189-," *The Academy*, September 9, 1893, 204.

[44] "Review: The Great War of 189-," *The Saturday Review*, December 31, 1892, 776.

as something likely at the time. In this way the novel fitted into the contemporary dread of war, though its swift and decisive outcome did not reflect the catastrophe that many writers considered likely at the time. The new technology which shaped Plevna, and so affected thinking on war afterwards, is present in *The Great War of 189-*, at least in the East, but it is not allowed to overshadow the result of the war.

The Great War in England in 1897 first appeared in serial form in *Answers* in 1893, three years after the work of Colomb *et al*, and was to go through no less than sixteen editions by 1899.[45] The author of this sensationalist work was William le Queux, who Clarke describes as a "tireless exploiter of any scare or anxiety that would 'make a story'."[46] Superficially, this later novel is similar to that of the fictional war of 189-, as both deal with a general European War, but the focus of the latter work is an invasion of Britain by France and Russia, enabled by the inadequacy of its defences and the complacency of the Government. It comes across as a less realistic portrayal of a future war than that of Colomb *et al*, partly because it is the work of a single author and not a panel which included military writers. Certainly the reviewer in *The National Observer* thought it "a piece of disjointed and inconsequent silliness." [47]

The novel was also written during the period of 'the dread of war' and technological change, such that:

> A Great War had long been predicted, forecasts had been given of coming conflicts, and European nations had for years been gradually strengthening their armies and perfecting their engines of war, in the expectation of being plunged into war. Modern improvements in arms and ammunition had so altered the

[45] Clarke, "Voices Prophesying War," 58.

[46] Clarke, "Voices Prophesying War," 58. *The Oxford Dictionary of National Biography* also described Le Queux as a 'self-publicist' as well as being an author, publishing 5 novels a year in the 1890s, and being paid at twelve guineas per thousand words, the same rate as Thomas Hardy and H. G. Wells. Le Queux was a member of the National Service League and a 'Germanophobe'. Biographical details from *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for William Le Queux (1864-1927), https://doi.org/10/1093/ref:odnb/37666.

[47] "Review: The Great War of 1897," *The National Observer*, September 15th, 1894, 466.

> conditions of war, that there had been a feeling of insecurity [among the] Powers.[48]

The novel is, however, only really concerned with the invasion of Britain, with the excuse for the failure of the Royal Navy to intervene being - this time - the despatch of the fleet to colonial stations via false commands from a spy in the telegraph office in Whitehall.[49] It is not long before the French land two corps and the Russians one half of a corps, rising to a total of 300,000 troops in only three days.[50] The identification of military units and individual commanders involved are lengthy and detailed, adding verisimilitude to the account, and le Queux specifically mentioned a recent piece published by the United Services Institution on the possibility of a swift French invasion, to provide weight to his work.[51] There is still plenty of room for hyperbole, however, with cruel Cossacks initiating a massacre at Eastbourne amongst vivid accounts of babies impaled on Russian bayonets.[52]

The invasion occurs all along the Eastern and Southern coasts of Britain, leading to financial calamity and business paralysis. London is immediately plunged into a crisis because of the inability to import food supplies from overseas and enemy action in the seas around Britain, causing the price of bread to rise and meat and fish to become unobtainable.[53] The war itself goes on in Europe – Germany and Austro-Hungary engage Russia, and Germany and Italy attack France, but the novel focuses on battles fought across the length and breadth of Britain. In the end, after much heroic but seemingly doomed resistance, relief comes in the form of Imperial troops from Australia, South Africa and India, who save the Mother country by expelling the invaders. One feature of the book is the deleterious effect 'anarchists' have on the country, which

---

[48] William Le Queux, *The Great War of 1897* (London: Tower Publishing Company, 1895 [First Published 1894]). Accessed on 14 January 2020, www.gutenberg.org, 15.

[49] Le Queux, "Great War", 55.

[50] Le Queux, "Great War," 69.

[51] Le Queux, "Great War," 70. Further supported by a piece in *Blackwood's Magazine* in December 1893 by General Archibald Alison; Le Queux, "Great War," 71.

[52] Le Queux, "Great War," 66.

[53] Le Queux, "Great War," 130.

Echevarria notes are drawn from the working class, playing on the bigotry of the middle and upper classes who formed the majority of Le Queux's readership.[54]

The novel makes mention of recent changes in technology, citing the involvement of "newly-discovered modes of destruction that make modern warfare so terrible."[55] Searchlights are used in battles to illuminate the night, and machine guns – specifically Maxims – are mentioned on several occasions, including their use to devastate an entire division of Russian cavalry, infantry and artillery.[56] There is also, parallel to the description in *The Great War of 189-,* a single intervention by a Russian airship, 'The Demon of War', in the siege of Edinburgh, which is fortunately destroyed by a novel 'compressed air' weapon, which fires 'dynamite shells' to destroy the airship, built by a British inventor named Mackenzie. Yet, amidst the trappings of new technology, the war is fought along conventional lines. For example, the climatic fighting around Birmingham is described as follows:

> there was soon a concentric rush for the hill, hundreds of the [Russian] grey-coats fell back and rolled down the steep slope dead and dying, but the others pushed on in the face of the frowning defenders, used bayonets with desperate energy…..[and won].[57]

There is great loss to the defenders, but this is more down to British determination than fire from magazine rifles. There are numerous examples of hand-to-hand heroism, exemplified by the repeated charges of the Bengal Lancers when Imperial reinforcements arrive in Britain, and ferocious battles when the Goorkha's (Gurkhas) use their 'knives' against the invaders.[58] The British infantry fight from trenches in Manchester, but like most of the battles of *The Great War of 189-*, the depictions follow a generically heroic pattern and read more like battles of the early to mid-nineteenth

[54] Echevarria, "Imagining Future Wars," 50.
[55] Le Queux, "Great War," 127.
[56] Le Queux, "Great War," 220.
[57] Le Queux, "Great War," 153.
[58] Le Queux, "Great War," 296.

century than the industrial war that was to come in 1914. Once more, technology does not change the character or duration of the war, which is swift, ending in triumph for the British Empire, which is enlarged as a consequence. As with *The Great War of 189-,* contemporary concerns over the likelihood of war are addressed, and new technology is referenced, but the imaginary war is rapid and the outcome unaffected by it.

Le Queux gave life to another fictional invasion of Britain in 1906, thirteen years after his first effort. *The Invasion of 1910* was a completely new work, and a more direct attempt to influence policy, with a forward by Lord Frederick Roberts', enthusiastic supporter of greater defensive measures in Britain, again forming a diatribe against perceived Government inadequacies (Roberts had also penned a forward to the imaginary invasion of 1897). The novel was originally published in serial form in the *Daily Mail* – the largest circulation daily paper of the time – providing it with a great opportunity for publicity.[59] Like its predecessor, it was ferociously successful, selling one million copies and being translated into 27 languages.[60] Most of the trappings of a wider European War are entirely absent this time, however, enabling le Queux to focus on the invasion of Britain by – on this occasion - the Germans, reflecting contemporary antagonism between the two nations. Clarke and Melby explain the rather diffuse geography of the invasion, which takes place all across Britain, as a deliberate move to include as many towns to provide local, vicarious interest to the national readership of the paper, just as the episodic nature of the book reflected the serialisation.[61]

On this occasion the Royal Navy is neutralised through a surprise German attack on Britain's naval harbours with blockships and torpedo boats on its fleet. This may have seemed plausible following the Japanese surprise attack by torpedo boats on the Russian fleet in Port Arthur in 1904, delivered before formal declaration of hostilities. Above all, however, "the real criminals were the British Ministers, who neglected

[59] *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for William Le Queux (1864-1927), https://doi.org/10/1093/ref:odnb/37666.

[60] Clarke, ed., "Tale of the Next Great War," 122.

[61] Melby, "Empire and Nation," 408.

precautions [and] permitted the British Fleet to be surprised."[62] The Navy is spared criticism, as it had been in the fictional war of 1897, with the real vitriol being focused on the Government. The naval sections of the novel, including the early German attacks, were written by a naval expert, H. W. Wilson, and come across as more measured than those in Le Queux's earlier work. Nonetheless, the Royal Navy proves unable to prevent the German invasion and their army is swiftly established on shore. The invasion – again - causes financial crisis with a panic on the Stock Exchange and the Bank of England suspending all specie.[63] This measure is contrasted with German judiciousness in raising a 'war chest' of gold to fund their war effort for a year.

The description of the land war itself has moved forward from that of the imaginary war of 1897. The German infantry are still "green and blue clad" which was accurate for 1906, as is the description of uhlans in sky blue uniforms; with the advantages of the British khaki uniforms for concealment highlighted.[64] The South African War is mentioned, if only to note that its lessons had been completely forgotten by the ever-hapless Government.[65] There is also a specific reference to the Russo-Japanese War, in relation to fighting in Essex, discussing the changed character of war, such that:

> nowadays a soldier need not expect to be either victorious or finally defeated by nightfall, and although this battle, fought as it is between much smaller forces and extending over a much more limited area than the great engagement between the Russians and Japanese at Liaoyang.[66]

There is a statement in the novel that military thought held that an attacker must outnumber a defender by six to one to succeed, figures mentioned in contemporary

[62] William Le Queux, *The Invasion of 1910* (Toronto: Macmillan, 1906), accessed on 17 January 2020, www.gutenberg.org, 85.

[63] Le Queux, "Invasion of 1910," 21.

[64] Le Queux, "Invasion of 1910," 198.

[65] Le Queux, "Invasion of 1910," v.

[66] Le Queux, "Invasion of 1910," 187.

writing in the periodicals and military journals[67] German barbed wire entanglements are mentioned, so the trappings of 'modern' warfare are present, such as in this description of warfare around Royston:

> [the German] close formations offered an excellent target to the rifles of the Volunteers and Militia lining our entrenchments. The attackers had lost men in the thousands, and were now endeavouring to dig themselves in….[68]

Later in this battle a charge by German cavalry is stopped by magazine rifle fire from mounted infantry. Then, as the war moves on, a huge work of more or less continuous entrenchments is put in place around London, with wire, zig-zag communication trenches and mines; although all this proves unable to prevent the German advance.[69] The novel also mentions the use of German motor-cycles, armoured cars and even – to use the precise term used in the text - 'motor infantry'; while the British defenders press omnibuses into service to move troops. In contrast, there is no mention of airships, unlike the rather fanciful account of 1897, which is perhaps surprising given the advances in aviation that had occurred since 1893, although the reason could again be to maintain the illusion of reality. Overall, therefore, this imaginary war of 1910 is fought on terms much closer to reality than that of 1897, informed as it was by the South African and Russo-Japanese Wars.

None of the innovations of new weapons or tactics, however, have any real bearing on the way the war unfolds. The Germans take London after a fierce battle, only to eventually be overwhelmed by 'the League of Defenders', who are civilians practising irregular warfare like *franc-tireurs* in 1870-71. Whereas in 1897 the Empire came to the aid of the nation, this time salvation comes from its own population turning on its invaders. Nonetheless, this war leads to a weakened Empire because "the struggle had been fought on British soil, British trade had been ruined, British finances thrown into

[67] Le Queux, "Invasion of 1910," 188.
[68] Le Queux, "Invasion of 1910," 233.
[69] Le Queux, "Invasion of 1910," 287.

utter disorder, and a great stretch of territory added to the German Empire."[70] It has, of course, been a short war, and while Le Queux acknowledged the tactical impact of new technology, it did not have any strategic effect: the war is decisive, just as the other three imaginary accounts described above.

The Invasion of 1910 met with a negative response from reviewers in the periodicals. *The Saturday Review* was sure of its likely appeal but was clear that "this novel is sure to command a wider attention than it is entitled to on its merit. The idea is not new, the style of redundant and cheap." [71] The reviewer went on to criticise the end of the novel, considering it to be melodramatic and pandering to popular sentiment, with the heroic overthrow of the Germans by patriotic British subjects. *The Athenaeum* saw it as a thinly described plea for the 'rifle clubs' favoured by Lord Roberts, and did not see it as having any great merit, although it thought it could instil interest in a discussion on the future defence of Britain.[72] *The New London Journal* rather wearily noted that it belonged to a legacy stretching back to *The Battle of Dorking* and that le Queux's previous invasion had not come to pass, "the year 1897 arrived, but the only invasion of our shores was a peaceful one, effected by those foreigners who came to see Queen Victoria's Diamond Jubilee." [73]

The hostile reception from the periodicals towards the later examples of invasion literature is palpable, as is their recognition that they would sell well. Part of that success was down to their grounding in contemporary realities, with their imaginary wars being set only a few years from the present, and the conflicts reflecting conventional thinking about contemporary war. They all reflect the received wisdom that wars would be short: all take less than a year, and while the later accounts (from the 1890s and 1900s) include references to technological change, it is not allowed to alter the picture of heroic battles and decisive conflict. The novels are written both for polemic effect and entertainment, and are not necessarily meant to be predictions, but

[70] Le Queux, "Invasion of 1910," 547.
[71] "Review: The Invasion of 1910," *The Saturday Review*, August 4, 1906, 148.
[72] "Review: The Invasion of 1910," *The Athenaeum*, August 11, 1906, 156
[73] "Review: The Invasion of 1910," *The New London Journal*, May 10, 1906, 10.

they exhibit the same limitations in understanding about what a future European War would be like as the bulk of articles in the periodicals and military journals. Technology barely effects tactics in these imaginary wars, and does not touch strategy at all.

Technological Futures

The stories described above are all examples of works warning Britain of the dangers which – the authors argued – it faced from invasion, or at least military unpreparedness, and so formed accounts rooted in a future which deliberately resembled the present. Each set a few years in the future, they did not allow new technologies, even of imaginary airships, to impact their narratives. In contrast, other writers chose to write stories where the impact of future technology on future war was the entire purpose of the narrative. Unlike the political visions which delineated the fictional wars of Chesney, Colomb *et al* and Le Queux, these are stories of technical advance and change, and provide a different way of interrogating the future. All are from the early 1900s to the 1914, and while there were earlier tales of this sort, their dates of publication illustrate the quickening pace of interest in the future evident as the period advanced.

The first story, chronologically, is Wells' "The Land Ironclads", which was published in *The Strand Magazine* in 1903. As will be explored in Chapter Seven, Wells' had a very clear vision that the future would be different to the present, and that it would be dominated not only by science, but also by a new type of 'efficient' operator. Written almost contemporaneously with his work forecasting the future, *Anticipations,* this story exemplifies his views, while simultaneously providing a way of breaking the trench deadlock that he believed would result from the use of more effective rifles. Wells' explicitly references the work of Bloch in the story, and his conviction that the next European War would lead to stalemate:

> The young lieutenant lay beside the war correspondent and admired the idyllic calm of the enemy's lines through his field glasses.
>
> "So far as I can see", he said at last, "one man."

> "What's he doing?" asked the war correspondent.
> "Field-glass at us," said the young lieutenant.
> "And this is war?"
> "No", said the young lieutenant; "it's Bloch."[74]

The story itself is not set in a specific location, nor are the combatant nations named, although the war has duly reached stalemate. The setting is essentially contemporary, except for the introduction of the eponymous ironclads, which dramatically break the deadlock by advancing across the lines of trenches with impunity and scattering the defenders, who are accompanied by the war correspondent who narrates the story. Wells described the onset of the ironclads as follows:

> There on the southern side was the elaborate lacework of trenches and defences, across which these iron turtles, fourteen of them spread out over a line of perhaps a mile… methodically shooting down and breaking up any persistent knots of resistance.[75]

Wells' ironclads are infeasibly larger than the actual tanks which followed their fictional antecedents more than a decade later, and emerge fully formed and perfect onto the battlefield.[76] This was unrealistic – Wells did the same with his airships in *The War in the Air* - and although secrecy *was* achieved by the deployment of real tanks at the Somme in 1916, they were mechanically unreliable and the Army suffered from a lack of experience as to how they should be deployed.[77] Wells, of course, is really telling a fable of how an 'efficient' society could conquer that of a conservative military culture unable to harness technology to its ends. There is a didactic tone to the story, and in this case his point is that those who wield the new weapons must be as 'scientific' as their

[74] H.G. Wells, "The Land Ironclads," in *Selected Stories of H. G. Wells* (Modern Library Paperback: 2004 [First Published 1903]), 153.

[75] H.G. Wells, "The Land Ironclads," in *Selected Stories of H. G. Wells* (Modern Library Paperback: 2004 [First Published 1903]), 164.

[76] Churchill acknowledged a debt to Wells in conceiving of what became the tank in this story; see Michael Sherborne, *H. G. Wells Another Kind of Life* (London: Peter Owen, 2010), 234.

[77] James S Corum, *The Roots of Blitzkrieg: Hans von Seeckt and German Military Reform* (Kansas: Kansas University Press, 1992), 6.

technology. He contrasts the antiquated defenders, in love with heroism, with the 'efficient' town-dwellers who man the ironclads, "[the Captain] and his engineers and riflemen all went about their work, calm and reasonable men."[78] Wells' war is a fable with perfect machines and cool operators, all the more to make his point clear.

Wells' does, however, allow his imagination to demonstrate other ways that technology might change warfare. For example, and this is shown in a feature usually unremarked upon in critiques of the story: his ironclads are armed with rifles controlled remotely through cameras.[79] Fed automatically with ammunition, they are aimed and fired from an operations room at the heart of the ironclad. Wells' even has these rifles provided with sights which compensate for changes in direction of the ironclad.[80] These developments would all come to pass in the future, but what is more significant is his recognition that technology would transform warfare. Historiographical attention is often focused on Wells' vision of future society, at the cost of ignoring his conception of war dominated by mechanical innovation. Although not always accurate, his vision of the future of war in this short story goes much further than the ironclads themselves.

"The Land Ironclads" was not the only story to develop a fictional means of breaking trench deadlock in the period, however, with Vickers publishing "The Trenches", in 1908. As with Wells' better known story, this war – between Britain and an unnamed adversary - has also become a vindication of Bloch, as put by the war correspondent who (once more) narrates his story:

> for the moment things seem to be at a deadlock: the armies have been at grips, but have had to draw off without any advantage gained on either side. It almost

[78] Wells, "Ironclads," 168.

[79] Wells, "Ironclads," 167.

[80] Wells, "Ironclads," 168.

> seems as if the conflict were likely to resolve itself into pseudo-siege operations.[81]

Vickers was an engineering officer with experience of the South African War and his descriptions of trench warfare are vivid, like his statement that the fighting in the trenches was a brutal and bloody business.[82] The story has 'The Snail' as its technological marvel; a machine that does not climb over trenches like Wells' land ironclads, but instead digs new ones towards the enemy line. The War Office has been indifferent to the value of this innovation (a common theme in many of these stories), but it proves highly effective when used, although Vickers' invention is *not* infallible – when deployed, like the first real tank, "some of the machines have been wrecked and some of the gallant drivers have been sacrificed: but a wonderful network of trenches have been accomplished."[83] His story culminates in the Snail helping to take a hill, but ends on a more pessimistic note, "we have pushed the enemy back, we have gained a stage on the road, we have at last been able to cry 'Check!' [but] war is a complex and terrible game. And the end is not yet in sight."[84] Unlike Wells, Vickers is allowing for the development of new countermeasures and a continuing struggle between offence and defence in warfare.

Arthur Conan Doyle's short story "Danger!", was published in *The Strand* magazine in 1914, as the July crisis unfolded across Europe.[85] The story is a fable not unlike the "The Land Ironclads" and "The Trenches", but Doyle's focus is war at sea. The story tells of the conflict between Britain and a small fictional nation, Norland, which is identified as being one of the smallest powers in Europe, and modelled on one of the Low Countries or Scandinavian nations.[86] When war breaks out between Britain and Norland, the

---

[81] C. E. Vickers, "The Trenches," in *The Tale of the Next Great War, 1870-1914: Fictions of Future Warfare and of Battles Still-to-come*, ed. I. F. Clarke, 234-250 (Liverpool: Liverpool University Press, 1995), 243.

[82] Vickers, "The Trenches," 248.

[83] Vickers, "The Trenches," 246.

[84] Vickers, "The Trenches," 250.

[85] Clarke, "Voices Prophesying War," 90.

[86] A. Conan Doyle, "Danger!", in *The Tale of the Next Great War, 1870-1914: Fictions of Future Warfare and of Battles Still-to-come*, ed. I. F. Clarke, 293-320 (Liverpool: Liverpool University Press, 1995), 293.

latter possesses a navy said to have been built at a total cost less than that of a single dreadnought battleship.[87] Its Government feels that it has no choice but to come to terms with Britain, until one of its navy's officers, Captain Sirius – the fictional account is written by him – calmly puts forward his conviction that his dozen submarines will be able to bring the war to a successful conclusion. Allowed his way, he then sets out to conduct what would be called, a few short years later, unrestricted submarine warfare against Britain's merchant marine, sinking ships carrying food and passengers to its shores.[88]

While the Royal Navy quickly destroys Norland's surface fleet and takes their capital, Blankenburg, Sirius' small fleet wreaks havoc with their merchantmen, leading to increased food costs, riots and starvation."[89] Eventually, Britain sues for peace and Norland is victorious. In the light of the German submarine campaign which was to come in the First World War, the story is uncannily prophetic. Norland's fleet even challenges international law, as Germany was to do, by attacking a neutral American merchantman carrying 'contraband' food.[90] Although Sirius exhibits some sympathy for the passengers and crew of the ships he torpedoes or destroys by gunfire, he and his compatriots maintain their ruthless tactics to the end, replenishing supplies in secret in fishing villages, and losing only a few submarines in the fictional war.

Doyle's war is set in contemporary times, and its aim is to demonstrate the myopia which he felt permeated the Britain naval establishment, with Sirius commenting at the end of the story that "war is not a big game, my English friends. It is a desperate business to gain the upper hand…."[91] From the perspective of imagining future war, however, it is interesting that Norland's submarines are *not* technologically futuristic weapons. Sirius comments – and the descriptions attest – to them being typical of

[87] Britain had 18 immensely costly dreadnought battleships in 1914, ships also criticised by Wells for being hopelessly vulnerable to his fictional airships in *The War in the Air*.

[88] Doyle, "Danger!", 303.

[89] Doyle, "Danger!" 315.

[90] Doyle, "Danger!" 206.

[91] Doyle, "Danger!" 317.

contemporary submarines.[92] What is novel is the ruthless way in which they are used, bringing a technological edge to commerce raiding often predicted to be a feature of future war in the periodicals. Like Wells' ironclads, however, Doyle's submarines are unrealistically reliable, and cannot be effectively countered, but his point is that new technology could disrupt conventional ways of fighting war. As shown in Chapter Four, Doyle was a prominent critic of the British Army in the South African War, and the cavalry in particular. He wanted revolutionary change, castigated the Government for failing to implement it, and was of the opinion that the lessons of the past were irrelevant.

A reviewer writing in *The Review of Reviewers* noted that the story had divided the opinion of naval officers at the time, although it saw his vision as prophetic, which is unsurprising as *The Review of Reviews* was always keen on flagging the dangers of war, as its support for Bloch a decade earlier demonstrates. [93] Six months later and *The Academy*, during the War, noted that his prophecies of submarine warfare had been fulfilled, although the blockade was far from being very effective at that stage in the war.[94] As with "The Land Ironclads" the impact of new technology on actual war was less impressive than in fiction; although Wells, Vickers and Doyle were right in the long run. It is important to emphasis this point: a focus on what they got 'right' and 'wrong' can miss the point. They were suggesting that new ways of waging war would disrupt its character, in contrast to the more pedestrian accounts of the invasion stories and articles in the military journals.

The final story with a technological edge is quite different: Jack London's story "The Unparalleled Invasion", which was written in 1910 and describes events of the late 1970s which are, to put it mildly, disturbing to a modern audience. It played on the contemporary fear of the 'Yellow Peril' and tells, without any obvious moral revulsion, of

[92] Doyle, "Danger!" 295.

[93] "Review: Danger!" *The Review of Reviews*. August 1914, 110.

[94] Lucius, "War Risks of the Future," *The Academy*, February 27, 1915, 132.

the complete genocide of China in 1976 through the use of bacteriological warfare.[95] London was a socialist and eugenicist with complex views on race, and John Swift identifies a historiographical debate on whether "The Unparalleled Invasion" was an ironic exercise (Swift thinks not).[96] London's story was shaped by the genetics of Mendel, which were being absorbed into Darwinian evolution, feared for Western non-fecundity, and of the perceived danger of China and Japan. [97] These views fed into what Swift considers to be a cold and impersonal story, which he thinks possesses an unusual degree of stylistic impersonality.[98]

The background to the cataclysmic annihilation of China is framed by London's relatively sketchy future history, which extrapolates the contemporary international situation of a dominant Europe and America into the late twentieth century, taking its jumping off point as the victory of the Japanese over the Russians in 1905, which he considers to be indicative of a major geopolitical shift.[99] It is then the Japanese – who London had respected during that war - who first awaken to the greater threat of China, whose population starts to rise inexorably, causing them to attack their larger neighbour, but they suffer such a complete a defeat that they retreat into isolationism.[100] China spends the following decades expanding its power through population growth, crowding out France from Indo-China (the indigenous population are not allowed to exhibit any agency). This first leads to the bombardment of China by France, which proves futile, and then the utter destruction of a French expeditionary force which simply disappears into the interior without a trace, as though absorbed by a miasma. London's Chinese are explicitly identified as being completely incomprehensible to the

[95] Jack London, "The Unparalleled Invasion," in *The Tale of the Next Great War, 1870-1914: Fictions of Future Warfare and of Battles Still-to-come*, ed. I. F. Clarke, 257-270. Liverpool: Liverpool University Press, 1995, 269.

[96] John N. Swift, "Jack London's Unparalleled Invasion: Germ Warfare, Eugenics and Cultural Hygiene," *American Literary Realism* Vol 35 No 1 2002: 67. Mendellian genetics came to prominence in the early twentieth century, although Mendel had worked on their formulation in the 1860s, as they provided a model of heritable characteristics which explained some of the apparent issues in Darwin's theory of evolution through natural selection. Inevitably, Mendel's work became misapplied by enthusiasts of Social Darwinism.

[97] Swift, "Jack London," 64.

[98] Swift, "Jack London," 65.

[99] London, "Unparalleled Invasion," 258.

[100] London, "Unparalleled Invasion," 260. London's positive attitude, which he characterises as 'orientalist', toward the Japanese is noted by Swift, "Jack London," 65.

Western nations, making them seem rather more alien, and less realistic, than Wells' Martians.

Eventually, facing being out-populated, Europe and America quarantine China and use aircraft to drop glass phials containing infections to eradicate the population. In this they are successful and London writes that:

> China had laughed at war, and war she was getting; but it was ultra-modern war, twentieth-century war, the war of the scientist and the laboratory….hundred-ton guns were toys compared with the micro-organic projectiles of death.[101]

After the war, a golden age follows until the 'Great Truce' – called to battle the Chinese – collapses in 1982 due to a quarrel between Germany and France over the ownership of Alsace-Lorraine. Contemporary concerns from 1910 are shown to have survived, therefore, although the 'civilised' nations undertake never to use bacteriological warfare against one another. New technology changes warfare utterly, works perfectly and successfully completes its horrific task. London explicitly identifies the heroes of the war as the scientists who developed the means of waging bacteriological war, and also the statisticians who warned the West of the population growth of China.[102] Science has proved the victor and is presented as having made the ordinary conduct of war irrelevant. Like Wells, Vickers and Doyle, London is writing of a future where science and technology have the power to overturn assumptions about how war will be fought, and take it to a new level of dislocation and destruction.

Future History

It was left to Wells to fuse together the elements of the political and technological tales of the future, and present a novel centred on the disruptive power of technology, but also rooted loosely in the tradition of 'invasion literature'. *The War in the Air* was first

[101] London, "Unparalleled Invasion," 269.
[102] Swift, "Jack London," 66.

serialised in *The Pall Mall Magazine* in 1908, and envisaged a conflict fought a decade or so in the future, dominated by newly built air fleets which wreak havoc on centres of population, leading to the collapse of civilisation. In contrast to the pedestrian conflicts of Chesney, Colomb *et al* and Le Queux, Wells' account bears no resemblance to the wars of the nineteenth and early twentieth centuries. *The War in the Air* occurs in a world transformed by a decade of swift material progress, and Wells was not writing a few years into the future as a simple device, but instead to present a coherent history of the future.[103] Wells himself was, however, rather dismissive of *The War in the Air, which he wrote in* 4 months, considering it to be simply a 'potboiler'.[104] It did, however, encapsulate his views that a dangerous combination of nationalism and technology would lead to the collapse of civilisation.[105] His view was that modern society was unable to absorb the shocks of a pre-modern society, echoing the opinion he expressed in *Anticipations*, that mechanical invention was moving faster than intellectual and social organisation.

Wells specifically named the great powers of the time of *The War in the Air*: Germany, the United States, Britain, France, Russia and a confederation of China and Japan.[106] So far, fairly predictable, but his future is dominated by the success of the Brennan monorail, a real invention attracting considerable interest around 1908, which using gyroscopically stabilised cars running on a single rail. This was seen as having the potential to transform transport, and Vice-Admiral Campbell wrote an article in the *RUSI Journal* at the time that suggested using it as a strategic network to protect Britain from invasion, as described in Chapter Five.[107] In practice the invention failed to catch hold, but in Wells' future cables carrying cars came to dominate the British landscape and enabled the Channel to be bridged. Although the pace of his change is infeasibly swift, Wells nonetheless adroitly mixes fact and fiction in the development of technology over the next decade or so, and his key theme is disorientating change. Wells posited

[103] H.G. Wells, *The War in the Air*, London: Penguin Classics, 2005 [First Published 1908], 68.
[104] Michael Sherborne, *H. G. Wells: Another Kind of Life* (London: Peter Owen, 2010), 185.
[105] Sherborne, "Another Kind of Life," 185.
[106] Wells, "War in the Air," 72.
[107] Peter J. Bowler, *A History of the Future* (Cambridge: Cambridge University Press, 2017), 98.

imaginary inventions such as 'Charlottenburg Steel' and ships equipped with 'explosive engines' (as opposed to oil burning engines), inserting them alongside airships clearly descended from contemporary Zeppelins.[108] His future even includes an initial failure of heavier than air flight, something conceivable in 1908, and his air fleets comprised of airships. In fact, it is the invention of a successful heavier-than-air machine which initiates the story. A British inventor, Butteridge, develops a successful ornithopter, a craft powered by flapping wings, which is a type mentioned as being theoretically possible in writings on aeronautics in the *RUSI Journal* in 1913 (see Chapter Five). He offers it for sale to Germany, after the British Government refuses to buy it, in a show of parsimony and conservatism which would have been just at home in the works of Le Queux.

The 'everyman' protagonist of the novel, Bert Smallways, manages to be carried to Germany in a balloon which was intended to carry Butteridge over the Channel. He lands at a park where an enormous air fleet of some eighty craft are about to set out to bombard New York, which Wells identifies as the commercial centre of the world, having supplanted London in the previous decade. Led by Wells' personification of the Prussian military spirit, Crown Prince Albert, the fleet crosses the Atlantic, supports the German Navy in their destruction of the American naval fleet, before reaching the Eastern seaboard of the United States. The German airships have been constructed in great secrecy but are highly capable; when the battle in the Atlantic occurs they are able to destroy the American ships with impunity – enabling Wells to criticise the vast sums spent on dreadnought battleships by the Great Powers.[109]

Although Wells' airships are infeasibly fully formed for what is evidently a secret and experimental design, his account is significant in demonstrating the ability of technology – this time in the air – to change warfare. Although the timescale of a decade from 1908 makes the dominance of aircraft over ships unrealistic, precisely this change was to come over naval warfare by the Second World War. Wells also foresaw the use of

[108] Wells, "War in the Air," 108.

[109] Wells, "War in the Air," 120.

tankers pumping oil to refuel American ships at sea, at a time when the Royal Navy had only recently trialled the first such system in reality.[110] These various points, made almost casually, demonstrate Wells' conviction that progress would change war, such that it would be fought under a completely different basis in the future. This is nowhere more apparent than when the German air fleet reaches New York, when the City, facing bombardment, surrenders. The authorities have not, however, considered the attitude of the general population who revolt against the surrender and commence what amounts to guerrilla warfare.[111]

As a consequence, the airship *Bingen* is brought down by a shell from a gun hidden by partisan fighters, and lands on Staten Island. The airmen try to repair it, but are besieged by the local population until two other airships intervene. As they withdraw, however, the population overwhelms and kills the defending Germans, which illustrates the inability of the airships to hold ground.[112] As Wells puts it, "[New York] was the first of the great cities of the Scientific Age to suffer by the enormous powers and grotesque limitations of aerial warfare….it was impossible to subdue the city except by largely destroying it."[113] Such destruction duly follows, but the German air fleet is then attacked by American aeroplanes and scattered in a storm. Shortly afterwards, vast air fleets from China and Japan invade America and Europe. General war follows and within a few months civilisation begins to crumble. Wells' future has every nation building air fleets, which are simple to construct, destructive but unable to achieve a decisive and lasting victory.[114]

Wells' constructed a coherent future history in *The War in the Air*, prefiguring his later and more comprehensive efforts in *Shape of Things to Come* (the earlier novel is

[110] Wells, "War in the Air," 107.

[111] Wells, "War in the Air," 137.

[112] Wells, "War in the Air," 145. The fictional incident of the *Bingen* strangely foreshadows events during the American intervention in Mogadishu in 1993, which inspired the film *Black Hawk Down*. In reality – and the film – a number of helicopters were brought down during attempts to recover the crew of the first to be hit, until ground troops evacuated the survivors.

[113] Wells, "War in the Air," 149.

[114] Wells, "War in the Air," 178.

similarly framed in terms of a future 'scientific' culture looking back on the war)[115]. The future history is mainly about the development of technology, with the only political innovation being the rise of China and Japan, and the novel sees new technical advances driving war forward to unanticipated outcomes, and negating comfortable assumptions about its controllability and likely outcome. This is emphasised by its anti-heroic tone, presenting war as confused and costly. There is, presumably out of a desire not to clutter the story, no discussion of war on the ground, or wider events as the world slides into barbarism as the economy collapses. In that sense, Wells is expressing the prevailing view that a long war would be unsustainable, as discussed in Chapter Seven. His war is, nonetheless, a break with the past, made unpredictable by new technology, and Wells' is issuing a warning to those who would unleash war to fear its consequences, as the hapless – and originally overconfident - Germans find after retreating from New York and being overwhelmed by Asian airships.[116]

There was a considerable reaction to *The War in the Air* in the press, with some seeing it as unlikely, such as the reviewer in *The Bookman* who was unconvinced by the idea that such a general war, involving many combatants, could come to pass.[117] The review thought it interesting, albeit rather didactic and a typical 'Wells book' in which a cataclysm was brought about by scientific invention. *The Saturday Review* was in agreement, questioning the invincibility of the airships and suggesting that counter-measures would have been developed, as well as considering it to "over-reaches its effects by imagining a catastrophe too tremendous to be adequality realised." [118] Similarly, *The Athenaeum*, while praising Wells' description of the war in the air and the clarity of the battle scenes, concludes that he did not entirely persuade the reader of a war bringing with it Armageddon. [119] For all these reviewers, the story was unrealistic, and Wells' future too different from the present to be believable. Only *The Review of*

[115] Wells, "War in the Air," 246.

[116] Holman, in his article on the 'airship panic' in Britain in 1913, cites both *The War in the Air* and – in terms of a German attack on Britain – *The Invasion of 1910* – as cultural drivers for imagined sightings of Zeppelins over Britain; Brett Holman, "The Phantom Airship Panic of 1913: Imagining Aerial Warfare in Britain before the Great War," *Journal of British Studies January* 2016: 103 and 113.

[117] "Review: The War in the Air," *The Bookman*, December 1908, 158.

[118] "Review: The War in the Air," *The Saturday Review*, November 14, 1908, 614-616.

[119] "Review: War in the Air," *The Athenaeum*, November 14, 1908, 2.

Reviews took a different line, rather breathlessly commenting that "it is no nightmare dream of a sensationalist romancer. It is a prophetic forecast of what may happen in the next ten years."[120] *The Review of Reviews* tended to be anti-war and concerned with what a European War might bring, so such a view is not surprising. More generally, however, reviewers saw the story as too fantastical to be taken seriously as a warning, by being set in a future both near and yet almost unrecognisable,

Wells' vision of war is shared by his more famous *War of the Worlds*, written a decade earlier (it is easy to see why the reviewer in *The Bookman* saw his later work as another example of a cataclysm brought about by science). Although this is perhaps the apotheosis of the invasion genre, it also says much about future war.[121] Wells' Martians land in England, in what is identified as the early twentieth century, although there is no future history to speak of in the novel, and set to conquer Earth with a mixture of ruthlessness and advanced technology which utterly negates resistance. For example, after their first disastrous encounters with Martian Fighting Machines and their heat rays, there is a powerful marshalling of British defensive forces to protect London, such that "altogether one hundred and sixteen were in place…never before in England had there been such a vast or rapid concentration of military material."[122] The Martian response, having lost one of their number through a lucky shell disabling a Fighting Machine at Weybridge, is to use chemical warfare to destroy the opposing batteries at range. With the defensive forces annihilated the War is effectively lost, with the commander-in-chief bleakly announcing that flight is the only hope for the population.[123]

[120] "Will the Airship Destroy Civilisation." *The Review of Reviews*, December 1908, 566. The periodical covered the serialised story with a set of reviews; "The First Battle in the Air," *The Review of Reviews*, June 1908, 572; "How New York was Destroyed by Airship," *The Review of Reviews*, July 1908, 45; and "Armageddon in the Air," *The Review of Reviews*, August 1908, 155.

[121] Clarke, "Voices Prophesying War," 84.

[122] H.G. Wells, *The War of the Worlds*, London: Penguin Classics, 1946 [First Published 1897], 41.

[123] Wells, "War of the Worlds," 89.

Widespread flight indeed follows and the fleeing millions foreshadow the refugees escaping German invasion in the World Wars. What Wells describes would later be called Blitzkrieg, such that his Martians:

> Do not seem to have aimed at extermination so much as complete demoralization and the destruction of any opposition. They exploded any stores of powder they came upon, cut every telegraph, and wrecked the railways here and there. They were hamstringing mankind.[124]

Their arsenal also includes aircraft: "something rushed into the sky out of the greyness, rushed slantingly upwards and very swiftly….something flat and broad and very large."[125] There is no description of it in use, but the implication is that the invaders have other scientific methods of destruction at their disposal than the heat ray and the black smoke. Here is scientific war at its most destructive and Wells also identifies the Martians as being creatures of mind, having dispensed with their bodies, becoming coldly intellectual and 'efficient.' Horrific though he portrays the Martians to be, he also established them as the consequence of technological advancement.

The War in the Air continues some of the themes of *The War of the Worlds*, but puts the destructive technology in the hands of humanity. Unlike the wars of Chesney, Colomb *et al* and Le Queux, Wells' war is not decisive, being instead uncontrollable once it begins. It is not necessarily more accurate, than *The Invasion of 1910,* with no mention of the war fought on the ground, or an explanation of how civilisation collapses, but the central point is Wells' conviction that technology would change war in unexpected ways, which it shares with his land ironclads, albeit magnified to global conflict. The point is not how 'right' his predictions were, but his mode of engagement with the future. The very concept of a 'future history' was not necessarily new, but Wells' produced one which foregrounded constant technological change.

[124] Wells, "War of the Worlds," 113.
[125] Wells, "War of the Worlds," 121.

Conclusion

Looking across these works, some common themes may be identified. Almost all of them are concerned with war in the immediate or close future. This is, at one level, hardly surprising, as the imminent future is bound to be of interest to a contemporary audience, as well as it acting as a device to ground the stories in perceived reality. Only London's grim tale about the extermination of China, and *The War in the Air*, are set further into the future, and the latter is only a decade or so from the present. The key distinction, however, is between those which are concerned with the disruptive effect of new technology, and those that use it only as window dressing for what are conventional descriptions of warfare. In the case of the invasion stories of Chesney, Colomb *et al* and Le Queux, new weapons and tactics are mentioned but do not change the outcome of their swift and traditional wars. In contrast, the short stories of Wells, Vickers, London and Doyle all use technologies to overturn assumptions about war (although Vickers' account is more nuanced), although they are each limited to putting forward the effects of a single new technology. *The War in the Air* is different in that it attempts to synthesise technological change into a coherent vision of the future. The fact that it stands out emphasises the tendency of contemporaries to think of future wars in traditional terms, and not to see how a combination of technological, demographic and social change would make the next great war in Europe quite different to the wars fought in Europe and the Far East between the industrialised nations in the late nineteenth and early twentieth centuries.

Chapter Seven The Wood and the Trees: Bloch and Wells

Previous chapters have demonstrated that the impact of new weapons on warfare was widely discussed in the civilian periodicals, military journals and fiction of the period. There was intense interest in the subject, and the overwhelming evidence is that military theorists understood that tactics had to change in the face of increased firepower. Calls for troops to show greater initiative, and for attacking formations to be dispersed, were reasonable responses to a situation where troops had to face potentially devastating fire from breech-loading rifles, machine guns and improved artillery. Nonetheless, the military were largely focused on tactical solutions, concerned with how to deliver attacks successfully on the battlefield, rather than on how strategy might be affected by a combination of more powerful weapons and larger armies. Consideration of what this might mean in a Great War in Europe was left to civilian commentators, and this research has identified the Battle of Plevna as the turning point when it was realised that war had been transformed by new rifles. As a result, the late 1880s and 1890s saw a peak of writing in the periodicals on future war, expressing fears about a war in Europe which were as vague as they were apocalyptic. The South African and Russo-Japanese Wars then refocused debate on tactics and the performance of the British Army, leading to less discussion on what a Great War might be like after the early 1900s. The British Army and military establishments in Europe had worked hard to develop tactics to fight the next Great War, but the effect of new weapons and armies on war at the strategic level had not been properly understood when it finally came in 1914.

What emerges from the vast majority of writing about future war during the period is either a focus on specific aspects, or else a formless fear of its potentially apocalyptic consequences. To use an analogy, if the future can be envisaged as a wood, then every attempt was made to inspect individual trees, or to fear at the darkness which sheltered under its canopy, but hardly any writers attempted to describe the wood itself. Two who did were Jean de Bloch and H. G. Wells (whose fiction on future warfare has already been discussed in Chapter Six), both of who published their key works on the future around the turn of the century. They presented systematic approaches to forecasting which were recognised as being revolutionary by contemporaries, but others did not

follow their lead, such that when war began in 1914, it unfolded in a way that most had not even imagined. Bloch and Wells lie at the centre of this chapter because they were the exceptions which proves the rule; they sought to forecast the future in ways that were so novel that they met with incomprehension, or outright hostility. Their predictions may have been imperfect, but throw into sharp relief the more limited and tentative ways in which others tried to interrogate the future.

Jean de Bloch, as he was commonly known in Britain and Western Europe, was born in 1836 in Poland – then part of the Russian Empire – with the name Ivan Stanislavovic Bloch; and died in 1902, aged 66.[1] His six volume treatise entitled *The Future of War in its Technical and Political Relations* was published in Paris in 1898.[2] A year later, an English translation entitled *Is War Now Impossible*?, comprising the sixth summary volume, was published.[3] There was considerable interest in Britain in Bloch's work, which was magnified because of the outbreak of the South African War in the same year. Bloch's central thesis was that the use of modern weapons in a European War would result in deadlock and the collapse of entire economies, making its prosecution self-destructive. Such a bleak hypothesis necessarily led to criticism from the British military establishment, whose *raison d'etre* was to fight wars. It certainly fed into the dread of war expressed by many writers in the British periodicals, and the publication of the full version was one of the factors which led to Czar Alexander to convene the Peace Conference at the Hague in 1899.

Only a few years later and H. G. Wells published a series of articles in *The Fortnightly Review* in 1901, with the overall title *Anticipations: An Experiment in Prophecy*, which were later brought together in book form.[4] Wells, who was born in 1866, was already

[1] Nicolas Murray, "Jean de Bloch", *The Encyclopaedia of War*, Wiley Online Library, accessed April 29, 2017, doi:10.1002/9781444338232.

[2] Murray, "Jean de Bloch".

[3] J. S. Bloch, *Is War Now Impossible? Being an Abridgement of "War of the Future in its Technical, Economic and Political Relations* (London: Grant Richards, 1899).

[4] Starting with H. G. Wells, "Anticipations: an Experiment in Prophecy – I – Locomotion in the Twentieth century," *The Fortnightly Review*, April 1901, 747-760. The most relevant article to the discussion in this chapter is H G Wells, "Anticipations: an Experiment in Prophecy – VI – War," *The Fortnightly Review*, September

famous for his scientific romances, following the initial success of *The Time Machine* in 1895.[5] That short novel included up-to-date scientific thinking on Darwinism, as well as being suffused with turn of century pessimism about science, technology and the future, traits shared by some of Wells' most significant subsequent works, such as *The Island of Doctor Moreau* (1896) and *The War of the Worlds* (1898). *Anticipations* marked a turning point for Wells, as he moved away from his early fiction towards a mix of more conventional novels, polemic journalism and scientific romances, often concerned with war, such as *The War in the Air* (1908). Wells was a member of the Fabian Society and the political dining club, the Coefficients, whose members included R. B. Haldane, whose reforms restructured the British Army after the South African War. After a long career Wells died in 1946, and David Smith identifies him as a particularly significant figure to both contemporaries and generations growing up during the first half of the twentieth century.[6] Unlike Bloch, Wells was looking forward many decades in the future, so his views – including the section of *Anticipations* about war – did not generate animosity from the British Army, although it did lead to a wider intellectual debate on the ability to predict the future. Wells knew and agreed with Bloch's views, but thought that new technology and a society designed to use it would prove able to break the deadlock he predicted.

Is War Now Impossible? was not only different to other contemporary books on the future of war because of its length (although the abridged English version is much shorter than his full work), but also its numerical approach, relying as it did on the assessment of economic statistics and ballistic data. Bloch was certainly not alone in moving towards a greater use of quantification at the time, and this chapter frames his approach within the context of other articles which did so in the periodicals.[7] While still relatively infrequent, their existence marks a growth in the use of numerical

---

1901, 538-554. The ninth and final article was H. G. Wells, "Anticipations: an Experiment in Prophecy – IX – The Faith, Morals, and Public Policy of the New Republic," *The Fortnightly Review*, December 1901, 1063-1082.

[5] Biographical details of Wells from the Oxford Dictionary of National Biography, https://doi.org/10.1093/ref.odnb/36831.

[6] David C. Smith, *H G Wells: Desperately Mortal* (New Haven & London: Yale University Press, 1986), xi.

[7] The complete *Future of War* was an immense work in its full form, running to 3,084 pages. Even in the shorter *Is War Now Impossible?*, the contents pages of maps and tables runs to four pages.

information, and fits within the context of coming age of 'science', which was often remarked upon in the periodicals of the time. Bloch's synthesis of information was impressive by any standard, and Michael Howard describes his book as "the first work of modern operational analysis, and nothing written since has equalled it for its combination of rigour and scope."[8] Operational analysis (also called operational research, which is the term used throughout this thesis) is the use of mathematical methods and analysis to assess military operations, and widely considered to have come into being during the Second World War, as described in Chapter One. The scale of Bloch's quantitative analysis does indeed dwarf those of his contemporaries, and this chapter demonstrates that they recognised it as little short of revolutionary, although military commentators tended to be disparaging of his use of 'ballistics' to explain what they saw as the art of war, best reserved for study by professional soldiers.

In contrast to Bloch, Wells' *Anticipations* adopted a systematic but more familiar narrative approach, looking at the twentieth century to come, through extrapolating current trends. Nonetheless, its scope was extensive, looking at the social changes which Wells believed would be brought about by continuing technological advance. As with his fiction, Wells' vision of the future betrays his personal opinions and desires, but it is the breadth of *Anticipations* which marks it out, and in the opinion of Wagar, it was the first attempt at the practice of future studies, a now well established discipline that attempts to forecast technical and social change on the extrapolation of present trends.[9] As described in Chapter One, future studies is considered to have begun in the 1960s, half a century after *Anticipations*, so it too – like *Is War Impossible?* - can be seen as innovative, which contemporaries also recognised (as did Wells, who subtitled his work *An Experiment in Prophecy*). There has been much historiographical debate on *Anticipations*, centred round what it reveals of Wells' social views, but this chapter will

[8] Michael Howard, "Men Against Fire: Expectation of War in 1914," *International Security* 9 (1984), 41. This may have been independent of, or derived from, a similar statement that Bloch's work was "the first operational research investigation in the history of warfare," I. F. Clarke, *The Pattern of Expectation 1644-2001* (London: Jonathan Cape, 1979), 187.

[9] W. Warren Wagar, *H. G. Wells: Traversing Time* (Wesleyan University Press: Middleton, 2004), 6, however, considers Wells' as having invented it in *Anticipations*.

argue that attention should also be focused on the approach he adopted, which can all too easily be overshadowed by discussion on eugenics and his vision of an ideal society.

The chapter is not, however, restricted to an examination of these two writers and reaction to their work. The bulk of criticism levelled at Bloch was aimed at his idea that trench deadlock would be the outcome of a Great War; there was less criticism of his idea of such a conflict leading to economic collapse. On the contrary, many leading commentators thought that a Great War could *only* be short, for fear of just such a collapse. This chapter therefore compares Bloch with a number of other influential and disparate writers; Norman Angell, the prominent peace campaigner; F. N. Maude, British military theorist and vigorous opponent of Bloch in the press; the noted German military writer Friedrich von Bernhardi (already referenced in Chapter Five) and Alfred von Schlieffen.[10] The chapter will reinforce the point that there was a consensus over the necessity of a 'short war' in the years before 1914 between peace campaigners and military theorists, even if they thought the outcome likely to be very different.

Overall, this chapter will demonstrate the importance, radical character and relevance of *Is War Now Impossible?* and *Anticipations* to the question of why commentators failed to predict the character of the First World War. It will show that while attention is ordinarily focused on the accuracy of their predictions in both works, their real significance lies in the novel approaches they adopted to anticipating the future of warfare. As previous chapters have demonstrated, there was no shortage of commentators interested in looking ahead to war in the future, including writers of fiction, but it is the *methods* of Bloch and Wells which mark them out for special interest. Critically, it was decades before these became widely adopted when interrogating the future, and their very novelty led to their views being of limited influence. Bloch, in particular, was largely forgotten by 1914, and it will be argued that their approaches demonstrate the difficulties of prediction at an age of spectacular advances in weaponry, which is why contemporaries failed to foresee what was to become the First World War.

[10] Chief of the Imperial German General Staff before the First World War, and architect of the eponymous plan to knock France out of the war, the failure of which was to lead to trench deadlock in the West

To return to the analogy adopted at the start of this chapter, while others were looking at individual trees, Bloch and Wells found ways to see the wood.

Bloch and Future War

In *Is War Now Impossible?*, as with his longer, complete work, Bloch assessed how recent changes in weaponry, finance and trade would affect warfare, and concluded that a future European war would lead to stalemate on the battlefield, followed by the collapse of nation states unable to either feed their populations or continue to pay for the war. His first assertion was based on the conviction that modern weapons had come to favour the defender, and his second on the increasingly inter-related nature of the global economy.[11] Mirroring these two assertions, the first part of *Is War Now Impossible?* dealt with military and naval developments, while the second was concerned with what Bloch termed 'economic difficulties in time of war.'[12] Bloch himself made it clear that he saw his work as a synthesis of widely accepted military thought, rather than novel research. This is borne out by the content of articles in the periodicals and military journals identified in Chapters Three, Four and Five, many of which clearly understood the impact of new weapons on war, and on the strengthening of the defence in particular.

Bloch was not, for example, presenting a contentious view when he stated that "in the opinion of competent military writers the war of the future will consist primarily of a series of battles for the possession of fortified positions."[13] Similarly, he expressed received wisdom that the scale of the future battlefield would confound commanders and make it difficult for them to concentrate their troops.[14] Yet again, he discussed the targeting of officers on the battlefield, which was also recognised to be an increasing

[11] A useful summary is provided by Niall Ferguson, *The Pity of War: 1914-1918* (London: Penguin Books, 1998), 9.

[12] Bloch, "Is War Now Impossible?", 163.

[13] Bloch, "Is War Now Impossible?", 11.

[14] Bloch, "Is War Now Impossible?", 39.

problem in the periodicals.[15] What made Bloch's work different was his *approach,* which was to draw on specific data at the tactical level and construct a synthesis of what future war would be like on a European scale. For example, Bloch referenced the work of Professor Gebler and his assessment of the effectiveness of contemporary rifles, who he cited as a 'specialist.'[16] He repeated Gebler's assessment, which showed – although the basis of his calculation is unclear – that the rifles of the 1890s were between four and thirteen times as effective as the Mauser rifle of 1871. Bloch's strength was to draw on this detailed analysis and conclude that such improvements would extend the battlefield, strengthen the defence, lead to a greater number of casualties amongst attackers, and result in strategic stalemate.[17] Bloch also pointed to the likelihood of future weapons being yet more effective, further strengthening the thrust of his general argument. There are numerous other examples of such inferences in his work, such as drawing on the writings and statistics of military experts like the French officers, Colonel Mignol and General Luset.[18]

The second part of *Is War Now Impossible?* comprised individual chapters on the economies of Russia, Britain, Germany and France. The chapter on Britain (like the others) contained a daunting number of tables of food production and imports, in terms of individual crop types or livestock – such as the number of sheep, cows and pigs in England in 1895.[19] It covered issues of savings and stocks, and demonstrated the trend towards a greater reliance upon imported foods, as well as a rise in the cost of armaments. Bloch's conclusion was that commerce raiding would reduce food imports to the point that famine could occur; leading to insurrection.[20] As is often the case with Bloch, his analysis was partially borne out by subsequent events, and partially confounded. Submarine warfare – commerce raiding in a twentieth century context - did indeed pose an existential risk to Britain in the First World War, with enormous efforts required to protect foodstuffs being imported into the country to prevent

[15] Bloch, "Is War Now Impossible?", 42.
[16] Bloch, "Is War Now Impossible?", 4.
[17] Bloch, 'Is War Now Impossible?', 5.
[18] Bloch, 'Is War Now Impossible?', 25-26.
[19] Bloch, 'Is War Now Impossible?', 255.
[20] Bloch, 'Is War Now Impossible?', 264.

shortages. There was, however, to be no insurrection in Britain, although the blockade of Germany by the Royal Navy did lead to unrest in 1918. The key point, it must be emphasised, is not the accuracy of his predictions, but the way in which he marshalled information to generate a coherent argument.

Bloch linked developments in armaments, the size of armies, their cost, and broader economic trends to provide a 'scientific' prediction – to use the term widely used in the periodicals of the 1890s - of the future. Many military observers such as F. N. Maude – who was a prominent critic of Bloch – attacked Bloch for being an amateur and on his focus on statistics, calling his book a triumph of 'ballistics' over military expertise. Maude's view was that numbers could not capture the subtleties of military practice, and that matters such as morale had to be factored into warfare. This view, however, ignored the subtleties of Bloch's analysis and his incorporation of elements of morale; for example, Bloch explicitly stated that when attacking "in loose formation…the spirit of armies has a much greater importance than before."[21] Similarly, in a phrase which also echoed Wells' views on warfare in the later *Anticipations*, Bloch wrote that "courage required no less than before, but this is the courage of restraint and self-sacrifice and no longer scenic heroism. War has taken a character more mechanical than knightly."[22] As evident in previous chapters, these views echoed many writers on warfare in the periodicals, who had begun to see an increasing role for science in warfare.

With hindsight it is indeed tempting, and interesting, to focus on what Bloch got 'right' and what he got 'wrong'. Historians have usually framed their views on Bloch in this light. A. J. Echevarria, for example, considers his arguments to be rather one-sided because he "discounted the possibility that even newer technologies might appear in the not-to-distant future to solve [the] problems, as they had in naval warfare."[23] This seems overly harsh, however, in that it was not until 1917, three years into the First World War, that armies began to develop the technologies and tactics to break trench

[21] Bloch, 'Is War Now Impossible?', 159.

[22] Bloch, 'Is War Now Impossible?', 352.

[23] A. J. Echevarria, *Imagining Future War: The West's Technological Revolution and Visions of Wars to Come 1880-1914* (London: Praeger Security International, 2007), 44.

deadlock, almost twenty years after Bloch had published his work.[24] Similarly, even Ferguson, who is more positive about his work, points out that he was wrong to assert that the entire economic system would collapse in a matter of months.[25] These statements are true, but it is necessary to look beyond Bloch's specific predictions and understand the novelty of his approach. Bloch's work embodied the very idea of 'scientific warfare' because his analysis was based on facts, figures and inference, rather than presenting a narrative, however well-constructed. Just as war itself was becoming a complicated matter of timetables, planning and industrial production, its prediction required new methods of assessment, which Bloch provided.

There was a significant response to Bloch's work from British observers in the press and periodicals. The publication of *Is War Now Impossible?* in 1899 coincided with the outbreak of the South African War, so he gained a measure of increased recognition around the turn of the century, which can be seen in the number of references made to him in the periodicals, made apparent though a search for 'Bloch' on the British Periodicals Online database.[26] In 1898 only two articles are identified, but in 1899 there are 58 references. In 1900, during the first full year of the South African War, there are 44 references; then 54 references in 1901 and 34 references in 1902. This rise in references parallels the conduct of the War, ending with peace and Bloch's death at the start of 1902. It is impossible to say which is more important for the fall off in the number of articles, but Bloch was extremely active writing letters and responding to critics between 1899 and 1901, so it may be due to him no longer being able to argue his case. The number of articles then falls away to between 2 and 8 annually between 1903 and 1914, with no articles returned in several individual years. Care must be taken with

[24] Jonathan Bailey, "The First World War and the Birth of Modern Warfare" in *The Dynamics of Military Revolution 1300-2050*, edited by Knox Macgregor and Murray Williamson, (Cambridge: Cambridge University Press, 2001), 132.

[25] Ferguson, "Pity of War," 10. The peace campaigner Normal Angell took a similar stance to the economic consequences of a European War in his 1909 work *The Great Illusion*.

[26] A search was conducted of the keywords 'Bloch' AND 'War' AND 'Future' within the British Periodicals database between 1898 and 1914. These keywords were selected to capture references to Jean de Bloch through reference to future war, to minimise identifying other people with the name Bloch. The search was conducted across the following categories: article, back matter, front matter, fiction/narrative, front matter, graphic, letter, obituary, poem and review.

the precise numbers, as some of the articles may refer to other individuals with the surname Bloch, but the trend and its peak are clearly evident.[27]

Even before the South African War, there was an almost immediate response in the press to the publication of *Is War Now Impossible?* This was in part due to Czar Alexander convening the Peace Conference at the Hague from May 1899 onwards, an event considered by some contemporaries to have been prompted by the publication of Bloch's work in its unabridged form. For example, one of the earliest mentions of Bloch in a British periodical or newspaper appeared in *Jackson's Oxford Journal* in March 1899. The journal carried an article sympathetic to the Czar's Peace initiatives, issued on 29 August 1898, reporting on a gathering at Oxford Town Hall to support the proposals.[28] The article criticised negative responses to his entreaties, and attributed the driving force behind it to be "the work of a Polish writer, Bliokh [sic] by name, [which] made a deep impression on the Imperial mind."[29] The article cited Bloch's views that the cost of a war would be ruinous, and that the finances directed to the maintenance of large armies in Europe should be redirected to more useful purposes. As so often with articles in the 1890s, it considered that a future war was an inevitability unless action to prevent it, along the lines of the Conference, were to be taken.[30]

Written in the same year, Low's article in *The Nineteenth Century* on the Peace Conference at the Hague also mentioned Bloch and his effect on it, as well as his "famous work".[31] Although he broadly accepted Bloch's position, Low concluded that disarmament could lead to the prospect of war being more palatable, and that large

[27] A number of the later references, in particular, are to other people with the surname Bloch.

[28] "Oxford's Response to the Czar's Message," *Jackson's Oxford Journal*, March 11, 1899, 7. The article only mentions the manifesto being released in but August, Arnold White, "The Tsar's Manifesto," *The National Review*, October 1898, 201, gives it as 29 August 1898. For mentions of Bloch in relation to the conference, see also M.A.M., "The War of the Future," *The Leisure Hour*, June 1899, 500; and Sydney Low, "The Future of the Great Armies," *The Nineteenth Century*, September 1899, 386.

[29] "Oxford's Response," 7.

[30] "Oxford's Response," 7.

[31] Low, "Great Armies," 386.

armaments guaranteed peace.[32] Views such as these can be found in other periodicals of the time, as shown in Chapter Three. Many of the articles on the Czar's initiative do not, however, mention Bloch, being in general more concerned with Russian motivations, often criticising the Czar of hypocrisy when Russia possessed a vast standing army, or questioning his diplomatic motives.[33] The Peace Congress itself was widely reported in the press; for example in an article in *The Standard* covered reports from various national capitals including Vienna, Paris and St. Petersburg.[34]

The English language translation and summary of Bloch's work received notice in the provincial press, reproduced from the national press. For example, *The Shields Daily Gazette & Shipping Telegraph* cited the May article in the *Review of Reviews* and was complementary regarding the power of Bloch's arguments over the likely character of future war.[35] Similarly, *The Walsall Advertiser* highlighted Bloch's key arguments about the likelihood of a stalemate during a future war, and of national collapse due to economic stress.[36] Even those who were less than completely supportive of Bloch tended to recognise the value of his work; an article from *The Sheffield & Rotherham Independent* contained a critique of his work through three primary arguments which were to be repeatedly levelled against him, although the author of this article considered him to be a shrewd and a careful writer.[37]

The first argument, it asserted, was that it was well understood that modern battles would be *less* destructive, which was a viewpoint commonly expressed at the time. This was based on the idea that the growth of the battlefield, due to the greater range of

[32] Low, "Great Armies," 386. Deterrence theory gained prominence with regard to nuclear weapons in the Cold War, but writers at the turn of the century understood its principles and contradictions, without using the term explicitly.

[33] A Soldier, "The Tsar's Appeal for Peace," *The Contemporary Review*, October 1898, 504. Other sceptical articles include White, "Tsar's Manifesto," *The National Review*, October 1898, and Sydney Low, "Should Europe Disarm," *The Nineteenth Century*, October 1898, 521-530

[34] "The Peace Congress," *The Standard*, May 15, 1899, 7.

[35] "Current Literature," *The Shields Daily Gazette & Shipping Telegraph*, May 29, 1899, 4. The article referenced by the newspaper is W.T. Stead, "Has War Become Impossible?" *The Review of Reviews*, May 1899, 2.

[36] "The Future of War," *The Walsall Advertiser*, October 21, 1899, 6.

[37] It is interesting that the writer notes that Bloch's work had been renamed *Modern Weapons and Modern War* and assumed that it was the sixth volume of his full work.

modern weapons, led to less decisive outcomes, longer battles and, therefore, lower casualties. The historical analysis of battles bore this out, particularly after the Russo-Japanese War, as an example from 1905 attests, reported in *The Review of Reviews*. The original article of interest was written by General Bliss of the US Army, which assessed the casualties from a series of battles from the Seven Years War onwards, and is worth citing at length:

> In the twelve principal battles of the Seven Years' War the average losses were victors 14 per cent., defeated 19 per cent. During the Napoleonic epoch an average of twenty battles gives victors 12 per cent. loss, defeated 19 per cent. The average loss in four principal battles in the Crimea was for the victors 10 per cent., for the defeated 17 per cent. The average of four principal actions in the Franco-Austrian War of 1859 gives for the victors 8 per cent. loss, for the defeated 8·5 per cent. In twelve principal battles of the Civil War the losses of the Union army amounted to 19·7 per cent. and of the Confederate armies to 19·6 per cent. The average of six principal actions in the Austro-Prussian War of 1866 gives for the victors 7 per cent., for the defeated 9 per cent. The average of eight principal actions of the first period of the Franco-Prussian War of 1870 gives for the victors 10 per cent., for the defeated 9 per cent. The average of three principal actions in the second period of the Franco-German War gives for the victors 2·5 per cent., for the defeated 3·5 per cent. In fourteen battles in the present Russo-Japanese War (excluding the siege of Port Arthur) the average loss was for the Russians 9·5 per cent., for the Japanese 4·6 per cent. [38]

This article used statistics to make a rational point, and formed part of a general trend towards greater quantification during the period. Bloch himself responded to the argument around the destructiveness of war in a letter to *The Times* early in 1901.[39] He commenced with the refrain that he was presenting his argument "in the interests of the

[38] '"Is War Becoming Less Deadly?" *The Review of Reviews*, August 1905, 173.

[39] Jean de Bloch, "Letter to the Times," *The Times*, February 28, 1901, 7.

scientific study of warfare."[40] Bloch's argument was that he had concluded that lower losses would occur, and therefore act to prolong war, creating the stalemate he believed would result; and noting that the full argument had been set out in Volumes 2 and 4 of his full work, *The Future of War*, which had not been translated into English.[41]

The second argument against Bloch's reasoning was perhaps the most frequent defence mounted by military writers who disagreed with his conclusions, namely that he did not consider the impact of 'moral' factors in warfare, or as the article put it "does not take sufficient account of the human element of war."[42] Maude, as noted above, attacked Bloch for considering war simply to be a matter of 'ballistics', and his assertion can be seen as an assault on the notion of reducing military theory to a matter of science. The third and final argument, that Bloch was an economist and not qualified to critique military matters, was also used by others to undermine his credentials, by attacking the man and not his ideas, and was commonly used by military commentators

A number of articles in the periodicals directly addressed *Is War Now Impossible*? such as M.A.M., writing in *The Leisure Hour* in 1899. He considered it to be a remarkable book and although he was not without criticism, saw it as ground breaking. In particular he drew attention to Bloch's "dry scientific method of marshalling his facts and figures, his freedom from emotion and passion."[43] He considered this to be at least as convincing as the moral arguments of other writers who were opposed to war, although he thought Bloch's arguments were deficient in literary merit. His article summarised Bloch's work, included both tables and diagrams, and focused more on his military than economic predictions.[44] Other writers highlighted his 'scientific' approach, such as an article published in November 1899 in *The Morning Post* which focused on Bloch's contribution to the wider debate on future war, noting that he used documentary material and reasoned argument "not to appeal to the sentiment but rather to the intelligence of the

[40] Bloch, "Letter to the Times", 7

[41] Bloch, "Letter to the Times", 7

[42] "Literary Notices: M. Bloch on War," *The Sheffield & Rotherham Independent*, February 14, 1900, 2.

[43] M.A.M., "War of the Future," 500.

[44] M.A.M., "War of the Future," 500.

public." [45] The article also cited the opinion of the German military historian, Colmar von der Goltz, that a future European War could not be terminated except through the individual or mutual destruction of the combatant nations. Bloch certainly agreed with the latter sentiment and stated that he had drawn on the assessment of contemporary military writers, including Goltz, and also Generals Rohne and Muller. [46]

A review in *The Academy* offered a similar viewpoint, pointing out the differences between Bloch's work and other works advocating peace.[47] Specifically, its "very effectiveness …lies in its cool scientific spirit of enquiry."[48] The author was extremely supportive of Bloch's views, but the key point is the reviewer's recognition that his work was different by applying a 'scientific' approach to war. It is also interesting that the author drew parallels with the conflict envisaged by Bloch and the Thirty Years War, rather than the more recent Napoleonic Wars or those of the nineteenth century.[49] This is a striking comparison, and notable because very few articles in the periodicals looked back so far into history for parallels. The author also mentioned the Battle of Plevna, that touchstone of recognition that modern weapons had changed war since 1878, as identified in Chapter Three.

Yet another positive account of Bloch, albeit a shorter one, can be found in *The Review of Reviews*, later in 1899.[50] All the articles in that publication, however, must be viewed in light of the fact that its editor was W. T. Stead, a notable peace campaigner who knew, admired and interviewed Bloch. [51] It is not surprising, therefore, that his periodical reported favourably on other peace campaigners, such as its account of an article by

[45] "M. de Bloch on War," *The Morning Post*, November 11, 1899, 3.

[46] Bloch, "Wars of the Future," 325.

[47] "War is Suicide," *The Academy*, October 7, 1899, 363.

[48] "War is Suicide," 363.

[49] "War is Suicide," 364.

[50] "War of the Future," *The Review of Reviews*, September 1899, 255.

[51] See Diplomati, "The Vanishing of Universal Peace," *US Fortnightly Review*, May 1899, 879, who explicitly mentions Stead in terms of his proposals for peace negotiation – which the author dismisses. The article is yet another which mentions Bloch's work, under the US title *The Coming War,* in relation to the Tsar's sponsorship of the Peace Circular which led to the Conference.

Émile Zola in the April edition of the *North American Review*.[52] Zola did not mention Bloch, but he was supportive of the Peace Conference at the Hague and believed that any future conflict would ruin the combatants and thereby – perhaps optimistically – end war. Like many of the writers of the 1890s, and unlike Bloch, however, his position was based on one of moral and narrative argument rather than of quantitative economic or military analysis.

Many of the periodicals, therefore, highlighted Bloch's work as being unusual, or even ground-breaking, through its foundations of 'scientific' analysis. Although the epic scale of Bloch's work was unique, the periodicals do contain examples of the increasing use of such analysis to underpin arguments, as noted with Bliss' work on historic wars cited above. Others mentioned the likelihood of future wars leading to fewer casualties, such as in a report in *The Review of Reviews* on an article by Milliard in 1905, on the likely outcome of the Russo-Japanese War. The report read that:

> On the whole, he is confirmed in a long-growing conviction that war is growing relatively less dangerous to human life, by which he means that modern man-killing devices slay fewer men in proportion to the duration of engagements than at any previous time in the history of war.[53]

Tellingly for a periodical that was extremely supportive of Bloch's work, the *Review of Reviews* considered that the article's conclusions "only partly bear out M. de Bloch's predictions."[54]

One of the factors which influenced writers who considered that casualties would be less in future wars was the way in which rifle calibres had reduced in recent decades. For example, Coulthard, in 1900, discussed the nature of wounds in the South African War and concluded that "no war in the past can attempt to compare with this South

[52] "M. Zola on War," *The Review of Reviews*, August 1900, 167.

[53] "War of the Future," 46.

[54] "War of the Future," 46.

African war of ours on the general grounds of humanity. For every man killed there are….3.7 wounded, but of these only about 5% die."[55] Coulthard's argument was that the smaller calibre bullets in contemporary rifles were more 'humane' and that surgeons had gained experience in treatment of such wounds, being more careful to keep them clean, and therefore leading to fewer amputations. What is significant about the article is that Coulthard used statistics to underpin his argument, and not simply narrative.

A much more comprehensive use of statistics is evident in an article written by Theodor von Sosnowsky in *The Fortnightly Review* in 1900. He compared the population of the European powers with the size of their peacetime armies, and calculated the number of soldiers per square kilometre for selected nations. His assessment extended to the cost of each army per soldier, noting that Britain was spending twice per soldier when compared with Austria-Hungary and Italy.[56] He concluded that what he called a 'mercenary army' necessarily cost more than an army of conscripts, so that introducing a more Continental system would not be as expensive as it might seem. Although his article was a polemic against Britain introducing conscription, his analysis was well supported with data, and his approach more interesting than his conclusion: he sought to use (although he does not use the term) 'scientific' methods to underpin his argument, albeit with a fraction of the number of tables and charts used by Bloch.

These are only, however, a few articles which used such approaches, out of the large number interested in the future of war. The overwhelming majority of articles remained purely narrative and made little or no use of numerical information. In fact, there is a sense that the discussion on the coming of 'scientific' methods far outweighed the number of practitioners applying them in reality. The idea that Bloch was breaking new ground with his work reinforces this point, as the magnitude of his analysis struck reviewers with added force. There was a move towards greater quantification in assessing the likely character of a future war, but Bloch was very different in the scale of his work, and this was recognised by contemporaries.

---

[55] W. J. C. Coulthard, "The Bullet Wounds of Modern Warfare," *The New Century Review*, July 1900, 39.

[56] Theodor von Sosnowsky, "The Future of the British Army," *The Fortnightly Review*, May 1900, 802.

Bloch had his critics, however, and none so more than Maude, as noted above. One of the earliest articles in what was to become a long standing dispute in print was Maude's piece in the *Pall Mall Gazette* in 1900.[57] Here, he used the argument that recent wars had been less destructive to criticise Bloch, arguing that "in spite of all the improvements in the mechanism of the modern magazine rifle, its destructive power has steadily declined, until nowadays it takes ten to twenty times as many shots to kill a man…"[58] What underpinned his argument was data that the percentage of casualties had fallen from the American Civil War, at 50%, to 36% in the era of the breech-loaders, paralleling the article by Bliss discussed above.[59] Maude was using statistics to argue against Bloch, fighting, as it were, fire with fire. Nonetheless, he ended his article in a more defiantly militaristic tone, suggesting that decisive and bloody action would be required to achieve victory and that "the greater the loss in a victorious fight the greater the honour."[60] Maude was putting forward the contemporary belief that success in war required decisive action, coupled with the will to achieve victory regardless of the cost, which was something advocated by prominent German military theorists.

In 1901, and this time in *The National Review*, Maude continued his criticism, pulling no punches with statements such as "even the childish conclusions of a most extensively misinformed amateur like M. Bloch can obtain even a limited circle of adherents."[61] As before, Maude took Bloch to task through the presentation of facts, using an analysis on the volume of bullets in flight to conclude that the introduction of improved rifles favoured the attacker.[62] His main argument, however, was based on the importance of 'moral' factors in war and the continuation of the eternal principles of warfare. As Chapter Four shows, other writers in the periodicals wrote about the enduring strategic principles of war, and therefore the relevance of studying historical wars, with Maude contending that "the essential features of warfare remain much as they have been for

[57] F. N. Maude, "M. Bloch's Fallacies," *Pall Mall Gazette*, May 18, 1900, 4.

[58] Maude, "Bloch's Fallacies," 4.

[59] Maude, "Bloch's Fallacies," 4.

[60] Maude, "Bloch's Fallacies," 4.

[61] F.N. Maude, "M. Bloch as a Prophet," *The National Review*, March 1901, 102.

[62] Maude, "Bloch as a Prophet," 110.

the past two centuries."[63] The article was, accordingly, full of references to the Napoleonic Wars and the Franco-German War and asserted that heavy casualties had always been a feature of war, specifically citing the destruction of the Imperial Guard at Waterloo as an example, and not a recent development.[64]

The argument between Maude and Bloch continued throughout the South Africa War.[65] Their positions reflect the difference in opinion between those – generally military – observers who saw war as essentially unchanged, and those like Doyle and Bloch, who saw technology as having revolutionised its practice. Bloch was explicitly dismissive of the use of historical reflection to assess modern warfare, considering that in relation to problems in South Africa "the clue to the enigma is to be found in the altered conditions of warfare."[66] Bloch was suggesting a rupture with the past: history could not provide answers to the course of a future war because technological change – as well as the impact of social change which increased the size of armies – has rendered its lessons irrelevant.[67] This fact was one of the cornerstones of his articles on the Transvaal War, as he tended to refer to it. To be fair to the military writers, they did recognise a need for changed tactics, but not necessarily strategy. Maude's argument for greater morale in the attack was not a unique position, and nor was it irrational, so long as it was not carried to extremes. Bloch and Doyle saw all aspects of war has having been transformed, while Maude and other military theorists saw it as modified, tactically, but still subject to unchanging strategic principles.

Maude was negative about Bloch but *The Review of Reviews* had been positive about Bloch's writings from the very beginning.[68] It is not therefore surprising that it contained a supportive piece on Bloch's article 'The Transvaal War and Its Problems', published originally in the French *Revue de Revues*. This article itself was later

[63] Maude, "Bloch as a Prophet," 109.

[64] Maude, "Bloch as a Prophet," 104.

[65] See, for example, "Colonel Maude vs M. de Bloch," *The Review of Reviews*, May 1901, 472; and "Bloch," *Saturday Weekly Standard & Express*, March 17, 1900, 10.

[66] Jean de Bloch, "Some Lessons of the Transvaal War," *The Contemporary Review*, Apr 1900, 458.

[67] Bloch, "Some Lessons," 458.

[68] "On the War," *The Review of Reviews*, February 1900, 131.

translated into English and sold in pamphlet form, and in it Bloch called for a scientific study on the conditions of the War in South Africa, referring back to Plevna for evidence of the value of entrenchments. Bloch's article, contained other interesting excursions - firstly, he concluded that turning manoeuvres had been made far more difficult due to modern rifles and that they must in the end result in frontal attack.[69] This point foresaw the ill-fated 'race to the Sea' of late 1914, when both the German and Anglo-French armies attempted repeatedly to outflank one another after the Battle of the Marne, which ended in trench deadlock from the English Channel to the Alps. Secondly, he explicitly tackled the issue of lower casualties in modern war and linked it to the phenomena of British troops surrendering after what he quoted as "trifling casualties".[70] He attributed this to the *rate* at which casualties had been taken, rather than the *percentage* inflicted, which adversely affecting morale, illustrating once again, logical insights absent from the thinking of most commentators.

Bloch published other articles on the South African War between 1899 and 1901, and the importance of Plevna as an indicator of modern war was yet again emphasised in a piece in *The Contemporary Review* in April 1900.[71] Bloch did not think that the quality of the British Army had been an issue in South Africa, but that the setbacks instead reflected the unavoidable consequences of modern warfare. He analysed Boer strategy, noting that their failure to press attacks even in successful circumstances arose out of a need to preserve their forces.[72] His opinion was that they realised that they had to fight defensively because of the asymmetric nature of the conflict, and he went on to discuss the potential of modern weapons to greatly enhance guerrilla warfare, in an astonishing premonition of colonial wars of the twentieth century. Although Bloch was not always correct in his assertions, his articles continually showed a willingness to raise – and provide evidence for – new ways of thinking about conflict. Although historians have rightly criticised Bloch for his errors, such as his view that nations would collapse in

[69] "On the War", 131.

[70] "On the War." 132.

[71] Bloch, "Lessons," 458.

[72] Bloch, "Some Lessons," 466.

months, it is his methods which remain most impressive, as does his ability to think in new ways about war, as in his views on guerrilla warfare.

A further article in the *Review of Reviews*, reporting on an article published by Bloch in the *New Liberal Review* in early 1901, included a quote from him which encapsulated his vision of how future war should be investigated, such that "a need exists for a thorough and scientific enquiry into all the complex questions involved in warfare…in which not only military men, but statesmen, scholars and economists should participate."[73] Such a view stands in contrast to the opinions of the military professionals, as they implicitly considered the others not to be 'professionals' in their own right. In modern, and therefore anachronistic terms, Bloch is suggesting a cross-disciplinary approach to the analysis of warfare, which came to pass later in the twentieth century. As he believed that a European war would involve entire societies, with implications wider than those of a purely military conflict, he called for the involvement of a wider range of professionals to assess warfare. Admiral Colomb, as noted in Chapter Five, suggested that just such a body should be formed to investigate the effects of new weapons, in an article of 1897 in *The RUSI Journal*. This was not to happen until decades later, however, as it was difficult for contemporaries, as Colomb said, to even identify to which organisation such a body should be attached.

Bloch faced his military critics head on when he gave a lecture at RUSI in Summer 1901, which was divided into two parts due to its length, and read on 24 June and 1 July. The lecturer was introduced, reflecting his role with the Czar and the Peace Conference, as "His Excellency M. Jean de Bloch, Russian Councillor of State."[74] In the first lecture Bloch discussed the relevance of the South African War to his general theory of a European conflict, noting that it was the result of twelve years of work.[75] He went on to insist that British difficulties were not down to any deficiency in the Army or its tactics, and was very critical of German attitudes to British performance in the conflict. He emphasised

[73] "The Real Lessons of the War," *The Review of Reviews*, March 1901, 267.

[74] Jean de Bloch, "The Transvaal War: Its Lessons in Regard to Militarism and Army Re-Organisation (Part I)," *The Journal of the Royal United Services Institution,* December 1901, 1316.

[75] Bloch, "Transvaal Part I," 1319.

the similarity of German, British, Russian and French doctrine before the South African War and systematically dismissed excuses made for what had happened in the South African War, such as the terrain or the distance Britain was fighting from its home base.[76] Overall, the first part of the lecture was very much about the fighting in the Transvaal, and deliberately designed to support the British Army and its performance.

The second part of the lecture, given a week later, turned to the familiar topic of a possible war in Europe, and Bloch noted by how much the armies in Europe had increased – from 6.75 million in 1877 to 15.5 million in 1897, before pointing out that these larger armies would make it impossible for the Germans to turn the French flank should the two countries go to war.[77] He emphasised the way in which modern weapons – as demonstrated in South Africa – enabled fewer defenders to hold a section of line because of increased firepower, and that attackers also had to spread out to avoid being annihilated in an attack. Consequently, any war would become deadlocked and Bloch, therefore, suggested that Britain should not go to war in Europe.[78] He concluded that the only course of action open to the Great Powers was to settle their differences through tribunal.[79]

The audience for his lectures contained a number of senior military and naval officers, to judge by those who spoke in the subsequent debate, including Admiral Bowden-Smith, Major-General C. E. Webber and Admiral Sir E. R. Fremantle. All the speakers recorded in the written account of the lectures were critical of Bloch's argument, albeit politely. For example, Admiral Bowden-Smith argued that the Boer fighters were irregulars and it was this which differentiated the war from a potential conflict in Europe.[80] Inevitably, one officer – Colonel F. J. Graves – took exception to Bloch's view that cavalry had to fight dismounted and would be incapable of turning flanks, arguing

[76] Bloch, "Transvaal Part I," 1325.

[77] Jean de Bloch, "The Transvaal War: Its Lessons in Regard to Militarism and Army Re-Organisation (Part II)," *The Journal of the Royal United Services Institution*, November 1901, 1417.

[78] Bloch, "Transvaal Part II," 1420.

[79] Bloch, "Transvaal Part II," 1422.

[80] Bloch, "Transvaal Part II," 1423.

that it had, as many commentators did at the time, a great future.[81] Admiral Fremantle adopted the familiar argument that modern weapons led to fewer casualties, although Bloch had also discussed the effect on morale of military units taking a high proportion of casualties in a short period.[82] The debate, therefore, followed the same pattern as that in the periodicals, with an emphasis on tactical matters rather than strategy, and a continuing conviction from the military audience that it was possible to wage successful offensive wars.

Bloch died at the end of 1901, less than six months after his lectures at RUSI, even as the debates on his work and its relevance to the South African War continued to rage. R. E. C. Long published a piece in *The Fortnightly Review* in January 1902 which acted as a retrospective on his work; and one of its key points was to criticise the way in which British readers had only been able to see his full work in "an absurdly abridged form."[83] He cited H. G. Wells, who had noted that cases like this led to an impoverishment of ideas through a failure to deliver a full translation of works into English. The article was fulsome in its praise of Bloch and made a number of points about his work; firstly he disagreed with British observers who thought that his work had been rejected by Continental military observers. Instead, he noted that Goltz had agreed with him that economic exhaustion was likely to be the outcome of a general European war; and that the Russian General Staff held positive views of his work.[84] Secondly, that although Bloch had been drawn into the debate on the South African War, he had always maintained that his work related to the economic impact of an indecisive war between the then Triple Alliance and the Dual Entente.[85] Nonetheless, Long suggested that his tactical predictions had proved to be sound in relation to the South African War and that

[81] Bloch, "Transvaal Part II," 1425.

[82] Bloch, "Transvaal Part II," 1431.

[83] R. E. C. Long, "Jean de Bloch," *The Fortnightly Review*, February 1902, 228. Long translated *Is War Now Impossible?,* as reported in Michael Welch, "The Centenary of the British Publication of Jean de Bloch's Is War Now Impossible (1899-1999)."),"* War in History* 7 (2000): 275.

[84] Long, "Jean de Bloch," 231.

[85] Long, "Jean de Bloch," 231. At the time of writing the Triple Alliance included Germany, Austro-Hungary and Italy; and the Double Entente Russia and France. This alignment was to remain fixed due to political choices made by the Great Powers, except that Britain was to later – informally – join France and Russia. Italy chose to remain neutral until 1915 before joining the Allies.

his pamphlet *Lord Robert's Campaign* had correctly predicted the guerrilla war which came about after 1900.[86]

The number of articles dedicated to Bloch inevitably declined after his death and the end of the South African War. He was, nonetheless, remembered by the peace movement, with the only article cited in this study to have a definitively female voice (noting that anonymity was the rules for many articles), written by Jane Addams, remembering his legacy in 1907. This confirmed that his memory was still alive, and Addams cited him as an example of one of two approaches to the proportion of peace. She considered the first to be a 'literary impulse' as exemplified by Tolstoy, while the second was that of Bloch and the Tsar (at least in terms of his call for a Peace Conference) who exhibited a "sense of prudence." [87] This distinction echoed writers who saw Bloch as presenting a rational and scientific argument for peace, as opposed to purely moral or rhetorical argument. Nonetheless, by 1914 Bloch was no longer discussed in the periodicals, belying his importance at the turn of the century, which can be seen in an example written in 1899, which referenced a speech by the Liberal leader, Sir Henry Campbell-Bannerman, supporting Bloch and being positive about his South African predictions.[88] Writing on a Great War in Europe had diminished after the South African War, as described in Chapter Four, and Bloch's ideas disappeared from the periodicals.

What was different about *Is War Now Impossible?* was the huge amount of evidence used to build its central arguments, and the way it synthesised that information into a coherent position. It moved from purely tactical issues surrounding modern rifles, which were widely understood by military writers, and built them into a strategic picture. This is nowhere better demonstrated than the example of flank attacks. Military writers realised that the difficulties of frontal attacks against an enemy armed with magazine rifles and machine guns made it necessary to find, and attack, the flanks. The cavalry used this to assert their greater importance, being the mobile arm able to find and exploit the flanks. Bloch, however, argued that the battlefield had become so

[86] Long. "Jean de Bloch," 235.

[87] Jane Addams, "The Dynamic of Peace," *The Review of Reviews*, February 1907, 175.

[88] "M. Bloch and the War," *Freeman's Journal & Daily Commercial Advertiser*, December 17, 1899, 4.

attenuated, and armies so large, that flanks would cease to exist, being replaced by a continuous line of defenders. This was indeed to become the case in late 1914 on the Western Front.

As Long pointed out, the South African War was a distraction for Bloch's theories, obscuring the fact that *Is War Now Impossible?* was about a European War and the consequences of coalition warfare. The increased power of the defensive was demonstrated in the Transvaal, but – for example – the smaller scale of the armies meant that continuous trench lines could not develop. The South African War itself focused British attention on matters of practical improvement with the army, and reduced thinking about the problems associated with a European War. Similarly, Bloch's real focus was obscured by the lengthy debate on his theories as tested in South Africa. Other aspects of his work, such as the view that a war in Europe would have to be short for economic reasons, became less debated, and yet it was here that he found agreement with other military commentators and peace campaigners, as shall be explored next.

Bloch's Contemporaries

Bloch was not working in a vacuum; other military theorists and peace campaigners published books on future war. The works of four prominent writers are examined here, to counterpoint Bloch's approach to interrogating the future. The first is Maude, indefatigable opponent of Bloch, who published *War and the World's Life* in 1907, which put forward his views on how Britain should prepare for a future European war, including meeting the threat of invasion. His work had strong foundations in Social Darwinism, with the second chapter being titled 'Sociology with Regard to Military History'. Maude agreed with the German conception of war as a struggle of wills, and concluded that the South African War should have been fought with more ruthlessness and disregard for casualties, which he summed up with the philosophical statement that "The [future] War must end soon: only decisive victories can end it: and only a resolute

offensive gives hope of decisive results."[89] In any case, he considered that the South African War was a poor model on which to base the likely character of a future European conflict.

As with the German military theorists, Goltz and Bernhardi, Maude was concerned with fighting a war in the immediate future, and preparing Britain and its Empire for an imminent war.[90] He was not, however, in agreement with them – or the general consensus - over new technology aiding the defence, concluding instead that modern breechloaders had *reduced* the effectiveness of the defence, citing examples of charging 'savages' reaching British troops equipped with such rifles, and suggesting that their fire was highly variable and ineffective.[91] He supported this with casualty figures from historical conflicts to show that modern warfare was less dangerous, as in his debates with Bloch. In this regard he was using quantitative methods, but in general his book was based on argument and the use of selected examples, such as the comment above, drawn from colonial warfare.

Maude did, however, agree with the accepted wisdom of the time that "we know that the first result of a War must be a run upon the banks, a tremendous drop in the value of securities and a corresponding advance in the price of food."[92] Such views were common in the fictional accounts of future war discussed in Chapter Six, up to and including Wells' *War in the Air*. Maude emphasised the threat of food shortages and stated that "no one seriously questions that at least a third of our population will be reduced to absolute want by a War within a very few weeks."[93] Here, Maude is in broad agreement with Bloch, although this is not evident in their debates, which focused instead on the military aspects of his thinking. Nonetheless, Maude did not hold that a war would necessarily lead to insurrection and collapse, stating that "the War cannot

[89] F. N. Maude, *War and the World's Life* (London: Smith Elder & Co., 1907), 55.
[90] Maude, "War," 408.
[91] Maude, "War," 351.
[92] Maude, "War," 368.
[93] Maude, "War," 369.

well last for less than two years."[94] Even more remarkably, Maude contended that Britain would require two years to develop its army and would only be able to fight Germany in Europe in concert with France, defending Belgium; and that in the meantime it would only be able to exert financial and naval force on the conflict. He therefore emphasised the need for the Government to safeguard food supplies and prepare the State's finances for conflict, but what is lacking from his analysis is any deep assessment of what would be required to build a Continental army or prevent food shortages. There remains a sense of war still being conducted along conventional lines, rather than ending in either disaster of a radical outcome. Maude does not make clear why the war would last two years, especially as he was convinced that decisive action was required to achieve victory. What is also lacking from his work is a sense that changed technology and demographics would transform the next war.

The German military theorist Bernhardi, who Bloch saw as a leading practitioner, has already been discussed in Chapter Five, in relation to his work *Cavalry and Future Wars.* He concluded that work, translated into English in 1906, with a call to Germany to take up arms, and to make the necessary sacrifices to achieve victory on the battlefield. [95] His later book, published in 1911, long after Bloch's death, *Germany and the Next War,* was centred more fully on the need for Germany to prepare for, and then embrace, war, so as to fulfil its destiny. More bluntly, as Bernhardi put it: "World power or downfall!"[96] Like his contemporary, Goltz, he called for the nation to be fully militarised and ready to mobilise to face the coming war, including stating that "we must therefore prepare not only for a short war, but a protracted campaign."[97] Like Maude, he was willing to consider the possibility of a long war.

He also focused on the need for the nation to be financially prepared, asking that "the national finances must be so treated that the State can bear the tremendous burden of a

[94] Maude, "War," 368.

[95] Friedrich von Bernhardi, *Cavalry in Future Wars* (New York: E P Dutton & Co., 1906), 294.

[96] Friedrich von Bernhardi, *Germany and the Next War* (London: Edward Arnold, 1914), 154.

[97] Bernhardi, "Germany," 154.

modern war without an economic crash."[98] He did not consider himself an expert in financial matters, but called for the 'national household' to be maintained in good condition.[99] He went on to discuss the need to grow and store foodstuffs, calling for agricultural production on wasteland, and increased deep sea fishing. These statements are interesting in a context of the time, when total mobilisation for a long war was anathema to German war planning.[100] Like Maude, however, Bernhardi is essentially putting forward a philosophical position, rather than discussing the likely character of a 'long' war in the future, either in financial or military terms. He is preparing Germany to fight a war, which might be long, but not suggesting how it might be fought, or even endured. This parallels Maude's thinking - there is a vagueness around the concept of a 'long war' which stops at the level of general principles.

Schlieffen, architect of the plan to which Germany marched to war in 1914, penned a much shorter piece on future war in the *Deutsche Revue* in 1909. Unlike Goltz and Bernhardi, Schlieffen was not a theorist and the editor of his papers, Foley, states that this short essay "is the closest thing to a single theory of war that Schlieffen published."[101] It began by stating how war has changed utterly with the coming of modern rifle fire and light artillery, and Schlieffen used examples from the Franco-German War, South African War and Russo-Japanese War to support the conviction that "no unit in close order, no man standing upright, can expose themselves to the rain of shot."[102] He went on to express the received wisdom of the time, which was that battlefields would be greatly extended, battles would last much longer, and that the use of entrenchments and night attacks would be essential.

Schlieffen also held to the consensus by stating that these long lasting battles would not necessarily be bloodier than those fought historically, citing statistics from the Battle of Mukden in the Russo-Japanese War, where 2-3% casualties occurred in a day, compared

[98] Bernhardi, "Germany," 260.

[99] Bernhardi, "Germany," 261.

[100] Holger Herwig, "Germany and the 'Short-War' Illusion: towards a New Interpretation," *The Journal of Military History* 66 (2002), 688.

[101] Robert T. Foley, ed., *Alfred von Schlieffen's Military Writing* (Abingdon: Frank Cass, 2003), 194.

[102] Foley, "Schlieffen," 194.

to 40-50% in a day in a typical Napoleonic battle.[103] He went on to say that the Russo-Japanese War had proved that it was possible to conduct successful attacks against modern rifle and artillery fire, but that the results could be inconclusive, with a danger of lengthy battles leading to attritional warfare. He discounted this form of warfare, nonetheless, because "a strategy of exhaustion is impossible when the maintenance of millions necessitates the expenditure of milliards."[104] Unlike Maude and Bernhardi, Schlieffen is suggesting that war would place a huge strain on a nation's finances, making a long war impossible.

Schlieffen's account is unusual in that he actually looked forward to war further in the future than most theorists, in a short but interesting set of passages. He noted that, whereas historically cavalry had worked to find the flanks of an enemy, that in the future dirigible airships would perform this mission, as they would possess a better view of the battlefield.[105] Their use, he felt, would lead to air-to-air combat and battles to achieve superiority in the air. Schlieffen characterised such combats as 'air against air', like 'cavalry against cavalry' and 'infantry against infantry'. Therefore, although writing about change brought about by technology, he framed it within an existing conception of warfare. As seen in Chapter Five, aircraft and motor vehicles were seen as augmenting war by the British Army, but not transforming it completely. Schlieffen's vision of the future saw war as continuing along conventional lines, with new weapons fitting into an existing framework.

The final writer examined here stands in complete contrast with the others. Norman Angell was a peace campaigner, whose work *The Great Illusion*, was first published in 1909 (the same year as Schlieffen's essay), and he put the case that war was no longer rational as it would not provide financial benefits to the aggressors.[106] He stood against the Social Darwinist narrative, contending that the interdependence of trace and finance

[103] Foley, "Schlieffen," 200.

[104] Foley, "Schlieffen," 200.

[105] Foley, "Schlieffen," 201.

[106] Angell was himself sceptical that principles could necessarily be converted into political policy. Biographical details from *The Oxford Dictionary of National Biography*, www.oxfordnb.com, entry for Norman Angell (1872-1967), https://doi.org/10/1093/ref:odnb/9815.

made war implausible, such that "war has no longer the justification that it makes for the survival of the fittest; it involves the survival of the unfit."[107] *The Great Illusion* was, however, first and foremost an economic analysis, and Angell set out arguments against the value of colonies and conquest – essentially concluding that peaceful trade was more effective than confiscation; based on examples such as estimates of the financial costs and benefits of the Franco-German War.[108] He considered that this was the result of historical change, and cited the example of how an Italian bombardment on a British city would now result in a run on its banks; whereas several centuries ago Italian pirates could have extorted physical wealth without any impact on their own finances.[109]

Angell explored what he called 'Human Nature and Morals' in the second part of the book, discussing the way in which changes in warfare reflecting the evolution of society, and stating that the physical element of warfare has diminished. Excusing his pejorative terminology and assumptions, this is be summed up in his statement that:

> "not that Fuzzy-Wuzzy is not a fine fellow. He is manly, sturdy, hardy, with a courage and warlike qualities generally which no European can equal. But the frail and spectacled English official is his master, and a few score of such will make themselves masters of teeming thousands of Sudanese."[110]

He added – without specifically mentioning Maxims and magazine rifles – that superior armament was the result of superior thought, and not physical force. Angell also criticised the vision of war as an adventure and concluded that contemporary war was a matter of thought, paralleling Wells' views (although not mentioning him), in that "the real soldiers of our time – those who represent the brain of the armies, have a life not very different from that of any intellectual calling."[111]

---

[107] Norman Angell, *The Great Illusion* (New York and London: G P Putnam's Sons, 1913), xii.

[108] Angell, "Great Illusion," 88.

[109] Angell, "Great Illusion," 267.

[110] Angell, "Great Illusion," 282.

[111] Angell, "Great illusion," 282.

Angell did not mention, or reference, Bloch in his book, although it must be remembered that a decade had passed since he had published his treatise; nor did he use his argument about changed weapons technology preventing decisive war. He echoed the title of his work, however, in his closing statement that "war is not impossible…it is not the likelihood of war which is the illusion, but its benefits."[112] It is hard not to be impressed by Angell's work – hindsight would clearly show the price paid for the World War (not to mention the collapse of many regimes) by its European combatants, and the changed world order which followed. His argument was based on a mix of data and reasoning, setting out the consequences of such a conflict very clearly.

Bloch is also not mentioned by Maude - unsurprisingly given their adversarial positions - or the German military writers. Angell shared Bloch's view that a long European War would be impossible on economic grounds, as did Schlieffen. This view was also expressed by writers in the periodicals such as Battine, who wrote a piece advocating support for France during a war, writing that "the maintenance of one and a half million soldiers on a war footing, while the business, trade and agriculture of the State is paralysed for want of workers…will tend to shorten wars."[113] Maude and Bernhardi did discuss, not unreasonably from a military viewpoint, the need to prepare for a longer war, but these statement were somewhat vague, and contrast with their positions on the need for decisive action to rapidly conclude war. This lack of detail on how a long war might be executed parallels the lack of strategic engagement in writing on war at the time. The principles of war were put forward, but the consequences of coalition war were not generally discussed.

Angell, Maude and Bernhardi all made use of statistics in their discussions of economics or casualty rates, but the magnitude of Bloch's work was unique. Angell is closest to Bloch, both in terms of his conclusions and approach to economic analysis, but lacking in what contemporaries saw in the former's work – its 'scientific' approach. As for the military theorists, they still maintained a view that the Great War, even if long, would be

[112] Angell, "Great Illusion," 387.

[113] Cecil Battine, "Our Duty to Our Neighbour: the Defence of France," *The Fortnightly Review*, June 1909, 1067.

fought within a familiar framework of military practice. As has been stressed in previous chapters, they knew that tactics had to change to meet the challenge of new weapons (even Maude, who saw new weapons as enhancing the chance for offensive action, knew that formations would have to be dispersed) but failed to see what would happen in a European War. Strategy was seen as something unchanging, because the means of predicting the future of war were still at an immature stage, and military culture was not yet ready to embrace 'scientific' war.

Wells and Foresight

In April 1901, as the South African War was being fought, H. G. Wells published the first instalment of *Anticipations* in *The Fortnightly Review*. Over the course of the next nine months Wells' set out his predictions of the future, as well as his scheme for how the world would – and in his opinion should - be governed. The work was phenomenally successful and already in its third edition in book form before its serialisation was complete.[114] Churchill wrote to Wells to commend him, complaining only about the estimated rate of change in *Anticipations*, to which Wells retorted that the upper classes did not understand the pace of change, as their lives changed less than others.[115] The sixth of these instalments addressed the future of war, and while it lacked Bloch's numerical assessment, represented a systematic attempt to foresee how war would be fought in the future.[116] As with the other instalments, Wells' was preaching as well as predicting, and the article is couched in terms of the emergence of "the coming State" which is portrayed as being both inevitable and ideal.

A significant historiographical debate surrounds *Anticipations,* and one of his biographers, Adam Roberts, singles out the last instalment, in which Wells presented his ideas of a New Republic, as having generated more controversy than any other element of the work.[117] Another of his relatively recent biographers, Michael Sherborne, also

[114] Smith, "Desperately Mortal," 92.
[115] Simon Heffer, *The Age of Decadence: Britain 1880 to 1914* (London: Random House, 2017), 424.
[116] Wells, "Anticipations VI – War."
[117] Adam Roberts, H. G. Wells: A Literary Life (London: Palgrave Macmillan, 2019), 108.

notes the historiographical battle over Wells' ideas, while also remarking that he recanted many of his more extreme views in his later writing.[118] In particular, Arthur Conan Doyle and G. K. Chesterton made him rethink his position following the publication of *Anticipations*.[119] Sherborne cites a previous biographer of Wells, Michael Coren, considering him too harsh in his criticism of Wells, noting the way that many contemporaries actually welcomed the last chapter as it aligned to their own attitudes.[120] Coren is indeed unremittingly negative, seeing it as a profoundly eugenicist work, which "presented a novel and terrifying picture of a Wellsian utopia."[121] Coren's biography is generally harsh on Wells' opinions, although he identifies positive (Sidney Webb, Arnold Bennett) as well as negative (J.B. Priestley and G.K. Chesterton) contemporary critics of *Anticipations*, which he sees it as "the swirling hybrid of predestination and Marxist gleanings and his own radical ideas which Wells had been groping towards in his earlier books."[122]

There is a danger of this debate overwhelming the purpose of *Anticipations*, which was to attempt a broad forecast of the future over the next fifty to a hundred years. The argument about his views on eugenics and race should not obscure the fact that Wells generated the first consistent analysis of how technological change might drive society and government in the future. As Sherborne puts it: "the book was widely hailed as a triumph in part because systematic thinking about the future was rare at the time and Wells was a gifted pioneer in the field."[123] The analysis which follows, therefore, is focused on the novelty of his approach, and not the political or social observations within *Anticipations*. Wells himself considered it to be a novel exercise, remarking that there had only been to that date a limited number of forecasts for the future:

> a suggestion of Mr. Herbert Spencer's, Mr. Kidd's Social Evolution, some hints from Mr. Archdall Reid, some political forecasts, German for the most part, and

[118] Michael Sherborne, H. *G. Wells: Another Kind of Life* (London: Peter Owen, 2010), 123.
[119] Sherborne, "Another Kind of Life," 149.
[120] Sherborne, "Another Kind of Life," 150
[121] Michael Coren, *The Invisible Man: the Life and Liberties of H. G. Wells* (London: Bloomsbury, 1994), 63.
[122] Coren, "Invisible Man," 63.
[123] Sherborne, "Another Kind of Life," 148.

> such isolated computations as Professor Crookes' wheat warning, and the various estimates our coal supply, make almost a complete bibliography.[124]

This was not necessarily true, as shown in Chapter Two, although the accounts that had preceded *Anticipations* lacked the scale of his endeavour. Wells went on to stress that there was, in contrast, an abundance of fictional works concerned with the future, including *The Battle of Dorking* and his own work, but that "very much of the Fiction of the Future pretty frankly abandons the prophetic altogether, and becomes polemical, cautionary, or idealistic."[125] Seen in the light of Wells' tendencies in that direction there may have been a hint of self-awareness (or hypocrisy) in his statement . Nonetheless, he clearly set out what he saw as a new form of 'scientific' analysis of the future, highlighting the fact that his approach was different to those who had attempted prediction in the past.

The most striking features of the chapter in *Anticipations* about war are, of course, its specific predictions, which the historiography has used to emphasise both its accuracy in some cases, and inaccuracy in others. For example, one oft-quoted extract is that Wells' "imagination refuses to see any sort of submarine doing anything but suffocate its crew and founder at sea."[126] Similarly, and quoted just as frequently, is his claim that "long before the year 2000AD, and very probably before 1950, a successful aeroplane will have soared and come home safe and sound."[127] Once more, the dates point to his failure to predict the future accurately, but this was not the aim of Wells' articles. He himself looked back from the vantage point of 1914 and pointed out where his predictions had been unsuccessful (as with flight), as well as successful.[128] As with Bloch, what Wells got 'right' and 'wrong' tends to be emphasised, rather than the fact

[124] Wells, "Anticipations - I," 748. Clarke considers Wells' judgement on his predecessors to have been wrong, and that there were already plenty of those who had written about the future, although he does consider *Anticipations* to have been the first comprehensive survey of future developments; Clarke, "Pattern of Expectation," 197.

[125] Wells, "Anticipations - I," 748.

[126] Wells, "Anticipations - VI," 549.

[127] Wells, "Anticipations - VI," 545.

[128] Smith, "Desperately Mortal," 92.

that it was his approach which was novel, which led him to believe that the future would transform war.

His view was that technology and social change would indeed bring about a complete revolution in the nature of warfare, such that "the new war will probably have none of those features of the old system of fighting."[129] Wells was agreeing with Bloch that the nature of war has changed, and fell squarely with others like Doyle who saw new weapons as having completely altered the character of war. Wells' views were just as evident in his fictional works, *The War of the Worlds*, 'The Land Ironclads' and *The War in the Air*, as discussed in Chapter Six. His assessment in *Anticipations* included both firm predictions based on current weaponry, and more speculative predictions of aerial combat and other innovations. He directly quoted Bloch and contended that "even along such vast frontiers as the Russian and Austrian…where M. Bloch anticipates war will be begun with an invasion of clouds of Russian cavalry and great cavalry battles, I am inclined to think this deadlock of essentially defensive marksmen may still be the more probable thing."[130] His assessment went further into the future than Bloch, however, with Wells' stating that aerial warfare would become critical in breaking deadlock once the initial phases of a war were over, as could mobile artillery.[131] His recognition of the importance of control of the air was far more impressive than either the dates he attributed for achieving successful flight, or his images of dirigibles ramming one another. Like Bloch, it was his approach which was impressive, although its novelty can be obscured by memorable quotations demonstrating just how wrong his timescales were. Prediction remains difficult even in the present day, and looking backward to point out how 'wrong' individual claims turned out to be, is an example of hindsight triumphing over contingency. As is evident in Chapter Five, military writers were debating the relative superiority of airships and aircraft, and steam power and the internal combustion engine, right up to the outbreak of War in 1914. The 'winners' are obvious with hindsight, in a way they are not at the time.

[129] Wells, "Anticipations - VI," 539.

[130] Wells, "Anticipations - VI," 540.

[131] Wells, "Anticipations - VI," 544.

Wells instinctively realised that technology would continue to change the circumstances of war. He also predicted total war, with the targeting of non-combatants, and the involvement of society in fighting for the State.[132] In his view, war would become a highly organised matter and those nations which failed to include their whole population and material assets into the war effort would be defeated. This outcome, although couched in terms of an 'effective' society and the emergence of the New Republic, is accurate when viewed against the way in which total war was waged during the World Wars, and especially the Second World War, when Allied victory owed much to their ability to marshal resources more effectively then the Nazi State.[133] War was indeed to become a matter for the State, and for scientific organisation and efficiency, as started to happen during the First World War.

Compared to Bloch's predictions of the dire consequences of a war fought at his time of writing, Wells' predictions are concerned with a future fifty to a hundred away. Unlike almost all his contemporaries, he was not looking at an imminent conflict but at a war far further into the future. Even though his successes in prediction were mixed, he was unafraid to speculate, as with aerial warfare, rather than simply staying with a discussion of current infantry and cavalry tactics. As Travers puts it, his success was in "ignoring the conventional method of preparing for war – the study of past campaigns and tactics – and instead provide an original approach to future war based upon an understanding of the inter-relationship between science, war and society."[134] Wells was a civilian who saw war transformed by technology and he looked further ahead, and more systematically, than his contemporaries.

The turn of the century had seen the publication of many predictions of the future, as demonstrated in Chapter Two, but its depth of analysis made *Anticipations* stand out, and Smith considers it as having had a significant impact on intellectuals of the time.[135]

---

[132] Wells, "Anticipations - VI," 542.

[133] Richard Overy, *Why the Allies Won* (London: Pimlico, 1996), 207.

[134] T. H. E. Travers, "H.G. Wells and British Military Theory 1895-1916, " in *War and Society: A Yearbook of Military History* edited by Brian Bond and Ian Roy, 67-87 (London: Croom Helm, 1975), 82.

[135] Smith, "Desperately Mortal," 94.

Immediate responses to it were widespread but varied, although there was little direct reaction to his thoughts on war; which is not surprising given that it formed only one chapter of nine, and the military could not feel threatened by speculation on war so far in the future it seemed irrelevant. An article in *The Academy*, entitled 'AD2000', considered it to be a serious and important book and stressed that "Mr Wells follows sanely and soberly the lines of present development."[136] The article focused on the philosophical aspects of war, but the author was clear that predicting the course of the next century would be immensely difficult given the huge changes which had occurred between 1800 and 1900.[137]

J. E. Hodder Williams which wrote a review of *Anticipations* in *The Bookman* which was antithetical to Wells' 'mechanical' view of the future.[138] His argument was against neither his approach nor his conclusions, but his philosophy, echoing Maude's critique of Bloch as merely being interested in 'ballistics'. Williams concluded that "this world of ours is, and will ever be, something incomparably finer than the perfect machine, and man is, and will ever be, something incomparably grander and nobler than the most perfect mechanism."[139] Williams is reacting against science, and presenting doubt and concern over the consequences of the 'scientific' age. Wells welcomed change, and there was certainly interest in the 'mechanical' in articles in the future in the periodicals, but there was also widespread fear – as in the dread of war so evident in the 1890s. Chapter Two also describes how *Anticipations* gave rise to speculation over the ability to predict the future effectively, with commentators differing in their opinions over its efficacy. Wells believed unequivocally that prediction was possible, as set out in a lecture at the Royal Institution a entitled 'The Discovery of the Future', given a year after the initial publication of *Anticipations*.[140]

---

[136] "In AD 2000," *The Academy*, November 23, 1901, 477.

[137] "In AD2000," 476.

[138] J. E. Hodder Williams, "Provocations by H.G. Wells," *The Bookman*, December 1901, 91.

[139] Williams, "Provocations," 92.

[140] H G Wells, *The Discovery of the Future: a Discourse delivered at the Royal Institution* (New York: B W Huesch, 1913). Accessed 5 April 2017, https://www.archive.org.

Wells began the lecture by suggesting that there were two sorts of people, at least in terms of extremes; those who were 'retrogressive' and thought mainly of the past and those who were 'progressive' and thought mainly of the future.[141] His view was that the world was shifting towards the progressive, moving from a position such that "three hundred years ago all people who thought at all about moral questions…deduced their rules of conduct absolutely and unreservedly from the past, from some dogmatic injunction, some finally settled decision, as the great mass of people do so today."[142] Wells contended that a very different challenge faced his contemporary audience, such that "this present time is a period of quite extraordinary uncertainty and indecision upon endless questions – moral questions, aesthetic questions, religious and political questions."[143] He regarded the pull of the past, while still extremely powerful, of little or no use in envisaging or predicting the future. Although he was not explicit regarding warfare, he was echoing the views of Bloch and others that there were limitations on the value of historical enquiry when looking at the future of war. Wells' solution to the problem was – predictably – to use scientific enquiry to anticipate the future.[144] In fact, Wells was explicit that the future could be understood as readily as the past, such that "the man of science comes to believe at last that the events of the year 4000AD are as fixed, settled and unchangeable as the events of the year 1600AD."[145] This phrase, approaching near-mystical predestination, is cited as such in Coren's rather dismissive view of *Anticipations* (although he does not address 'The Discovery of the Future'). Even Sherborne, who is generally more positive regarding Wells' views on the future, considers that the lecture began with rational enquiry and then moved to a quasi-religious position.[146]

Wells supported his assertion about the predictability of the future with a lengthy passage on the successes of science in uncovering the deep geological and historical past over the previous hundred years, considering Darwin's *The Origin of Species* as a

[141] Wells, "Discovery of the Future," 8.
[142] Wells, "Discovery of the Future," 12.
[143] Wells, "Discovery of the Future," 9.
[144] Wells, "Discovery of the Future," 21.
[145] Wells, "Discovery of the Future," 23.
[146] Sherborne, "Another Kind of Life," 154.

turning point in human knowledge.[147] Essentially, the scientific method – which he identified as the analysis of facts and not merely the accumulation of facts – would enable the future course of history to be deduced with some certainty. He regarded the impact of 'great men' on history, citing Napoleon as an example, as less important than that of the mass of humanity, echoing Marx's thinking. The lecture concluded with a conviction that human affairs were changing more rapidly than ever, and that there had been more change in the past hundred years than in the previous three millennia.

The lecture provides valuable context to *Anticipations*, as it demonstrates that Wells' approach was based on induction. In essence he was attempting to 'discover the future' through reasoned analysis, and his later lecture made it clear that he saw it as something which would emerge in due course through the scientific method. It is to be noted that the prediction of a *certain* future is not now considered feasible in future studies, which is more concerned with assessing different future scenarios, or *possible* future histories, rather than suggesting that there is a single future waiting to be revealed through careful analysis.[148] Nonetheless, Wells was putting forward ideas centred on the rational assessment of current trends, even allowing for the fact that his tone veered towards the prophetic. Like *Anticipations*, 'The Discovery of the Future' was a something of a sensation and Smith considers that it went on to transform Wells' standing and his reputation, changing his life and greatly raising his profile.[149] Joseph Conrad was one who spoke positively about the lecture and stated that it showed the differences between the approaches of science and art, particularly when responding to critics of the article.[150]

Direct links can be seen between these two works and Wells' fiction. His scientific romances, which he tellingly called 'Fiction about the Future', addressed the same issues

[147] Wells, "The Discovery of the Future," 49, and 27-33.

[148] Wendell Bell, *Foundations of Futures Studies Volume 1: History, Purposes, and Knowledge* (London: Routledge, 2017), 80. He states that "there are central questions of future studies…that involve systematic and explicit thinking about alternative futures." In fiction, the idea of alternative futures came into being with Murray Leinster's *Sidewise in Time* in 1934. Like the idea of mechanical time travel put forward by Wells, alternate futures had to be *conceived*, supporting a more complex conception of the future.

[149] Smith, "Desperately Mortal," 97.

[150] Smith, "Desperately Mortal," 96.

as *Anticipations* and 'The Discovery of the Future'.[151] In *The Time Machine*, published in 1895, Wells' set out the first fully-formed scientific vision of travel into the future, as opposed to earlier stories which had used the medium of dreams or supernatural sleep achieve the same aim, and dealt with the impact of evolution on humanity.[152] Chapter Six covers the ways in which his fiction echoed his views on the future of war, which he saw as representing a complete break with its past.

Bell considers that Wells stands out as the progenitor of futures studies with the publication of *Anticipations* in 1901.[153] He also notes that a radio talk given by Wells' in 1932, he called for 'Professors of Foresight' to be employed to predict and manage the future.[154] They were not, however, to emerge in reality for another generation, with futures studies only becoming a discipline in its own right until the 1960s, highlighting the precociousness of Wells' *Anticipations* and the ideas he extolled in 'The Discovery of the Future'. The failure of these ideas to be established earlier highlights the fact that society was not yet ready to take them as more than a curiosity, rather than a tool for examining the future – including that of war. Contemporaries recognised that Wells had created something new in his interrogation of the future, but there was to be no equivalent assessment before the First World War, just as Bloch's monumental work was not to be followed by anything comparable.

Conclusions

Bloch and Wells approached the challenge of rapid technological change by developing new ways of forecasting its future. Bloch was focused on the near future, and largely on the prospect of a Great War in Europe. Wells wrote about a more distant future and war was only part of his interest, enmeshed as it was in his vision of an 'efficient' society. What they had in common was that they were 'discovering the future' through what they characterised as scientific means. Their individual predictions, while still startling

[151] Smith, "Desperately Mortal," 57.

[152] Smith, "Desperately Mortal," 56.

[153] Bell, "Futures Studies Volume 1," 7.

[154] Bell, "Futures Studies Volume 1," 7.

in some cases, can obscure the more important fact that their methods were novel to the point of being unique. This meant that they could easily be misunderstood, or discounted by contemporaries. Bloch met fierce resistance from military critics such as Maude, who felt their professionalism threatened by someone they categorised as an amateur. There was no real engagement with Wells' ideas of future war from the military, although there was wider intellectual debate, leading to an outburst of interest in the question of whether or not it was possible to predict the future.

Their different approaches to forecasting the future were only to become established decades later, and the failure to exploit them illustrates the challenge facing those who tried to predict the future of war in the decades leading up to the First World War. Individual predictions were common enough, but they tended to be limited, vague or purely tactical in nature, and lacked the efforts at synthesis attempted by Bloch and Wells. They tried hard to see the wood, and not the trees, and thereby came much closer to successfully predicting the future than their contemporaries. But they also came too early, and the culture of the time, particularly in the military, did not embrace their methods, so Europe went sleepwalking towards a very different war to the one most had predicted.

Conclusions

In the legends surrounding the fall of Troy, the priestess Cassandra, daughter of the Trojan King Priam, was cursed with the ability to foretell the future truthfully, but never to be believed. Her story has become emblematic of those who foresee accurately, but whose warnings are not heeded. There were many prophets of war writing in the decades before the First World War, and the predictions of those who foresaw disaster should Europe go to war did not prevent the conflagration. Historians accept that a willingness to go to war, and a false belief in its controllability, played their part in the decisions which led to the War beginning in 1914. This makes it easy to berate those who failed to see what would happen, and judge predictions in terms of those who were 'right' and 'wrong'. In reality prophecy, as the story of Cassandra exemplifies, is a difficult business, as it requires both an accurate forecast and an audience willing to listen. This thesis has shown that many contemporary writers made telling predictions about the future of war, but they largely focused on particular aspects such as battlefield tactics, or expressed indistinct apocalyptic fears. Bloch and Wells were almost alone in attempting to create comprehensive visions of what war in the future would be like, although as Wells was looking further ahead, so it was left to Bloch to engage with contemporary military theorists. The failure of most commentators to see only detail is central to why most prediction was to fall short of the reality of the First World War. Forecasting was difficult in the face of the changes in weaponry since the mid-nineteenth century, and the military establishments of the time lacked the institutions and intellectual outlook to predict what would happen when Europe went to war.

This thesis has used the systematic examination of the British periodicals and leading military journals from 1870 to 1914 to advance the historiography in a number of ways. The approach has certain limitations, as the authors of the articles and books it has examined were drawn from a socially narrow group, as well as being overwhelmingly male, with an intended readership from the upper and middle classes. Nonetheless, opinion and political action lay in the hands of this group, as shown by the number of prominent historical figures who are cited in this thesis. War and its future were

important to the decision makers of the time, as the debates in the periodicals demonstrate, illustrating engagement with the subject, as well as deep unease about the consequences of technological advance.

The thesis has clearly identified the significance of the Russo-Turkish War, and the Battle of Plevna in particular, as a catalyst for debate on the power of new rifles and their impact on war. The havoc wreaked by the Turkish defenders at Plevna stuck in the imaginations of contemporaries and acted as the foundation for a widespread dread at the prospect of a European war, which peaked in the early 1890s. This promoted talk of peace treaties and gave impetus to Bloch's *The Future of War,* which sought to persuade readers of the likelihood of military deadlock and economic collapse should the great powers go to war. Bloch presented his arguments through logical and systematic analysis, and impressed his contemporaries through his appeal to reason, but he was not alone in fearing the consequences of a European War.

The thesis has added weight to the arguments of those, like Travers and Howard, who see the British military of the time responding rationally – although not always successfully – to the challenge of new technology. The vast majority of articles on future war in the military journals and the periodicals show a keen appreciation of the realities of 'modern' warfare, and suggest practical ways of overcoming increasingly powerful defensive fire. The idea of 'the cult of the offensive', put forward by Van Evera and Synder, who suggested military theorists were retreating into a near-mystical belief in 'moral' solutions to solve problems on the battlefield, looks overstated in the light of the articles researched in this thesis. The issues which were to bedevil commanders in the First World War were well understood from the 1880s onwards, including the dispersed nature of the battlefield, the need for troops to show greater initiative, the vulnerability of officers to enemy fire, and the need to avoid frontal attacks in the face of powerful new rifles. There was also nothing eccentric in those articles which called for greater initiative and morale, as these were recognised as a valid part of warfare. Only a minority of pieces edge into more mystical or ill-founded territory, and these are often

associated with articles on the cavalry. These are quotable but rare in comparison to the more hard-headed analyses.[1]

The thesis has also shed new light on the debate on the armament of the cavalry, which featured so prominent in the periodicals and military journals from 1900 onwards. There are far more articles on the cavalry than on the artillery, and their number approaches that of the infantry, reflecting the social pre-eminence of the mounted arm. Articles often seek to explain why the cavalry had failed in recent wars, citing either training, terrain, lack of initiative or failure of leadership. Taken together, they come across as exercises in special pleading for an arm facing imminent obsolescence. Those military theorists like Friedrich von Bernhardi who wrote of the *increased* importance of cavalry, read – with hindsight - as particularly desperate to assert its continued relevance. The considerable historiography on the cavalry demonstrates, perhaps more than anything else, their continued importance in social terms, obscuring their relative insignificance in military terms, as was to be demonstrated forcibly in 1914.

Above all, however, this thesis has made clear a dichotomy between the majority of commentators, who focused on particular aspects of war, and a small minority who attempted a broader synthesis. In the former category were the military writers who were interested in what new technologies could offer, such as aircraft and motor vehicles, but saw them as only augmenting existing military practice, and not driving revolutionary change. The *RUSI Journal* is full of commentary on the technical aspects of aircraft, motor vehicles and new models of rifle, but only rarely examines how these

[1] History was to show that the military theorists were wrong when the First World War unfolded, but it is interesting to entertain a counterfactual digression. Niall Ferguson, *The Pity of War: 1914-1918* (London: Penguin Books, 1998), 458, suggests that had Britain not intervened in the First World War, France would have been knocked out of the war, such that even if the German Army had been checked at the Marne, they would almost certainly have succeeded in overwhelming the French army in the absence of substantial British reinforcements. If this had happened, then the War would have been much more like the Franco-German War, presumably with a settlement in the East. Amongst the huge differences which this would have made to world history, military historians would have looked at the pre-war theories of war and considered them right in their prognosis. They would have surmised that the careful examination of the South African and Russo-Japanese Wars had led to the development of tactics capable of meeting the challenge of increased defensive fire, resulting in a short and decisive war. Far from being seen as deluded, the theorists would have been vindicated. If nothing else, such a counterfactual shows the difficulties of predicting the future if contingency is to be accepted.

might affect military practice. In fact, imaginative prediction tends to occur in the earliest articles on new technologies, such as aircraft, and narrows once it is better established. Writers in the periodicals would also often use historical assessments as a form of comfort blanket, turning to a conviction that the underlying rules of war were unchanging in the light of new weaponry. To use the military expression, most observers focused on tactical, rather than strategic, issues.

Relatively few writers went further and attempted to synthesise a picture of what 'modern' war would be like, chief of which was Bloch, although there were others, such as W. W. Knollys in 1890, or the anonymous writer in *The Academy*, writing in 1899, who both thought it likely that the next European war would be more like the Thirty Years War than the Napoleonic Wars.[2] Military theorists like Bernhardi and Maude also generated cohesive pictures of future conflict, but when they discussed the concept of a European war, they thought in terms of general principles rather than pressing concrete predictions. The focus was on a short war and the need for decisive action to facilitate it, for fear of economic collapse, which was one of the few areas of common agreement between Bloch and Angell, as peace campaigners; and contemporary military theorists. There was a widespread failure to understand that a long war would arise as a consequence of a conflict between industrialised coalitions, or to heed the warning of the Elder Moltke, military architect of the Wars of German Unification: "woe to him who sets Europe ablaze."[3]

Another telling aspect of the interrogation of the future of war was that writers generally thought of it as not years away, but imminent. Fictional wars were also ordinarily placed – for the good reason of engaging the readership – a few years in the future, and in most accounts these were essentially the last war refought with slightly modified weapons. These imaginary wars were controllable and conventional, and reflected a broader intellectual current in the periodicals. Wells plotted a different

[2] W. W. Knollys, "War in the Future," *The Fortnightly Review*, August 1890, 274-281; and "War is Suicide," *The Academy*, October 7, 1899, 363.

[3] Dennis Showalter, "From Deterrence to Doomsday Machine: The German Way of War, 1890-1914," *Journal of Military History* 64 (2000), 683.

course, and what marks his work out - in fact and fiction - was the systematic examination of a more distant future, with recognition that it would be completely different to the present.

Wells was rare in trying to piece together a complete picture of how the future, including that of war, might be, and it is easy to overlook the fact that the mentality required to understand technological change was only just emerging. The structures, methods and intellectual framework were still being developed to interrogate the future. This is where Bloch and Wells, in different ways, stand out, producing works which presaged much later means of looking at the future (specifically, operational research and futures studies). Bloch's huge work on future war took individual elements and pierced them together into an impressive military and economic synthesis, while Wells tried to extrapolate current trends fifty to a hundred years into the future. Both of their works were recognised as ground breaking at the time, with commentators on Bloch speaking of him as having discovered a new 'scientific' method and even a new 'law' with his work.[4] Yet, nothing similar to his work was to be published for decades. The same was true of Wells, who was still forlornly calling for 'Professors of Foresight' in the 1930s.[5]

In general, and especially in the 1890s, there was much talk of the rise of 'science' and yet there was little sign of its implementation by the military at the time, although there was a subtle increase in the use of quantification in the periodicals, and calls for a more scientific approach in the Army. For the British military, however, the use of wargaming as a tool to look into the future of war actually decreased in the twentieth century, and while the content of the military journals go against the notion of a profoundly anti-intellectual military establishment, their conservatism still prevented new methods of examining the future from gaining a lasting hold. Bloch and Wells were often wrong in their predictions, but demonstrated ways of looking into the future that were ahead of their time. As exceptions, they counterpoint the bulk of prediction at the time, which

[4] G. G. Thomas "The Bloch Museum of Peace and War," *Chambers Journal* LXXX (1903): 258, quoted in Michael Welch, "The Centenary of the British Publication of Jean de Bloch's Is War Now Impossible (1899-1999)," *War in History* 7 (2000).

[5] Wendell Bell, *Foundations of Futures Studies Volume 1: History, Purposes, and Knowledge* (London: Routledge, 2017 [First Published 1997]), 7.

was focused tactically, on particular issues, or aimed at the near future. Prediction of the future is never easy, but it was particularly difficult at the time, when contemporary observers faced unprecedented change. The South African War did produce soul searching and change – the view that the British Army was hopelessly conservative as put forward by DeGroot is a simplification – albeit within an existing framework of military expectation. The uncertainty of the future precluded radical change, as it was an unknown, so such conservatism is explicable not only on social grounds, but also from the perspective of the difficulty of knowing where future technologies might lead. In 1897 Admiral Colomb suggested to RUSI that there would be value in establishing a research body to look at new technologies, but struggled to see where it would fit within the existing organisation of the Army, Navy or Government.[6]

The introduction to this thesis quoted I. F. Clarke, who wrote that "the great paradox running through the whole of [the] imaginary wars between 1871 and 1914 was the total failure of army and navy writers to guess what would happen when the major industrial nations decided to fight it out."[7] The answer to this question is that neither civilian and military writers were equipped to predict what would happen, as shown by the limited ways in which they interrogated the future. Wells and Bloch demonstrated how it was possible to build a more incisive and compelling picture of the future, but the intellectual climate was not yet ready to accept their methods. To be fair, it is easy to forget how novel change was, and how the methods of prediction, including fictional modes of engagement, had to be learned. Cassandra spoke and was not believed, because her language had not yet been deciphered.

[6] P. H. Colomb, "The Future of the Torpedo," *The Journal of the Royal United Services Institution,* December 1897, 1465.

[7] I.F. Clarke, *Voices Prophesying War 1763-3749 (*Oxford: Oxford University Press, 1992), 81.

Appendix A Assessment of British Periodicals

This Appendix provides context to the British periodicals which form the key research resource of this thesis. Articles have been cited from 47 different periodicals, including one non-British periodical (the *US Fortnightly Review*), three professional journals (*The Journal of the Society of Architects*, *The Magazine of Music* and *The Musical Standard*), and three religious magazines (*The Quiver*, *The Wesleyan-Methodist Magazine* and *The Leisure Hour*). In total, there are 234 specific citations from the periodicals, in contrast with 18 from newspapers. This Annex contains a detailed assessment of the twelve most cited periodicals (all are cited at least six times) in this study; all of which are referenced by Sullivan's methodical analysis of the contemporary market, excluding *The Speaker*.[1]

The periodical which has the most references, numbering 52, is *The Review of Reviews*, which was published on a monthly basis. This is not surprising, as it was a wide-ranging compendium of reviews on articles in other British, European and North American periodicals. *The Review of Reviews* ran from 1890 to 1953, and its early years were dominated by its founder and initial editor, W. T. Stead, until his death on the *Titanic* in 1912.[2] Stead had been the editor of the *Pall Mall Gazette* in the decade preceding the foundation of *The Review of Reviews* and was seen as something of a sensationalist with an eye for interesting ideas.[3] His drive and centrality to the periodical can be seen from his authorship of the annual 'Progress of the World' in the periodical, which strongly reflected his views, and the estimate that "Stead personally wrote or dictated over 80,000 letters during the years 1890-1912."[4]

[1] Alvin Sullivan, *British Literary Magazines: The Romantic Age*, 1789-1836 (London: Greenwood Press, 1984). Alvin Sullivan, *British Literary Magazines: The Victorian and Edwardian Age*, 1837-1913 (London: Greenwood Press, 1984). Alvin Sullivan, *British Literary Magazines: The Modern Age*, 1914-1984 (London: Greenwood Press, 1984).

[2] Sullivan, "Victorian and Edwardian," 356.

[3] Sullivan, "Victorian and Edwardian," 351.

[4] Sullivan, "Victorian and Edwardian," 354.

The Review of Reviews is referenced so extensively in this thesis for two reasons. The first is, as noted above, its character as a summary of other periodicals – both national and international, making it a rich source of material from which to draw citations. The second is that many of the issues relevant to future war, and the future in general, were of personal interest to Stead. These included the limitation of armaments, as seen in his tireless championing of Bloch; support for the Boer Republics – leading to his criticism of the South African War; and Anglo-American alliance and reunion – which was a concern shared with many contemporary writers facing the relative decline of Britain.[5] He supported women's suffrage (paying identical wages to his female staff) and his unstinting championing of many unpopular causes, such as that of the Boers, was out of choice rather than a desire for greater circulation, as they severely decreased advertising and sales.[6] After his death his sons took up the editorship of *The Review of Reviews*, but with notably less success.[7]

The articles from *The Review of Reviews* referenced in this study frequently reflect Stead's interests. Bearing in mind that his editorship began in 1890, all the relevant articles date from the period 1890-1910, with a single article from 1914 reviewing Arthur Conan Doyle's short story *Danger!* Seven relate to the South African War, no less than eleven to Bloch (two overlap both of these categories), and a further eleven to different aspects of the future, including nations such as America, institutions like the church, and new technology. The other commonly referenced subject is the relative decline of Britain, cited in nine articles. Of the others, three are focused on the War in the Soudan, two others on the German military at the end of the 1900s, and five on different aspects of the peace movement. The subject of two of the later articles is Bloch; who is mentioned in Stead's *Progress of the World* for 1910, and in an appeal to fund the peace museum established in Switzerland after his death.[8] Both are unusual, being published long after interest in his work had waned in the periodicals. The conflict in the Soudan is mentioned in the 'Progress of the World' for 1898, with the other two

[5] Sullivan, "Victorian and Edwardian," 354.

[6] Sullivan, "Victorian and Edwardian," 356.

[7] Sullivan, "Victorian and Edwardian," 356.

[8] "The Progress of the World," *The Review of Reviews*, October 1898, 327-335.

articles focused on casualties on enemy combatants in that war, which was vigorously debated at the time.[9] In summary, these large number of referenced articles indicate Stead's interest in war – or rather its curtailment or prevention. This also extended to interest in Wells' *The War in the Air* in 1908, with four articles dedicated to reviewing its serialisation.

The Saturday Review was a weekly publication which began its life in 1855, and is cited 32 times in this study, between 1870 to 1912. Sullivan characterises it, at least in its early decades, as "addressing the educated and privileged classes, generally [taking] a moderate line."[10] With an anti-socialist and anti-suffrage stance, it became a dependable supporter of the Conservative Party in the 1880s, but then went through something of a renaissance under the editorship of Harris, who moved from *The Fortnightly Review* (see below) and recruited Wells to its stable of writers.[11] After his tenure the periodical began a decline and had periods of losing money, although it finally ended publication much later, in 1938.

The Saturday Review showed a consistent interest in warfare and the British Army throughout its period of publication, including citations in this thesis of four articles on the Franco-German War, two on the Russo-Turkish War of 1878, three on the Soudan, and one on the Russo-Japanese War. A further nine articles cited discuss a wide range of more specific military subjects, including long-range rifle fire in the 1880s and 1890s; field artillery and tactics. What is surprising, in the light of these references, is the relative paucity of articles on the South African War. In contrast, there was a great interest in the armament and tactics of the cavalry. Ten articles cited are concerned with this subject, with some having a passing interest in the South African War, and they are all on the side of the argument that sword, lance and shock action should remain the primary role of the cavalry in battle. Four articles were penned by the indefatigable Grey Scout, who wrote throughout the period on the 'true cavalry spirit' and the primacy of traditional armament. He was not, however, alone, with others agreeing (noting that

[9] "The Progress of the World," *The Review of Reviews*, November 1910, 417-435.

[10] Sullivan, "Victorian and Edwardian," 379.

[11] Sullivan, "Victorian and Edwardian," 381.

there are nuances) with his viewpoint. Regardless of the wider politics supported by the periodical, there is certainly conservatism on display over this aspect of military matters in *The Saturday Review*. Other articles, later in the period of interest, dealt with Wells' lecture on 'discovering the future' at the Royal Institute; and a piece by Colonel Maude (Bloch's critic from the turn of the century) on French military strategy two years before the First World War. *The Saturday Review* also contained four articles on different examples of 'invasion literature' from Chesney in 1870 to Wells and *The War in the Air* in 1908.

The Fortnightly Review has the third highest number of references in this study, with seventeen. The periodical was founded in 1865 with (ironically, given its title) monthly issues after 1866, and was established in an attempt to be non-partisan and to inform its readers with 'cultivated' articles on science, art, literature, politics and finance.[12] From 1886 to 1894 its new editor, Harris, who later joined *The Saturday Review*, took what was already seen as a liberal periodical in a more radical direction, which included publishing work by Wells and Kipling.[13] From 1894, all the way through to 1928 (*The Fortnightly Review* ceased publication in 1954), the editor was William Leonard Courtney who, in Sullivan's opinion, brought back an emphasis on publishing political and intellectual articles.

This is evident in the articles referenced in this study, most of which belong to the period 1900 to 1914, and which tend to be lengthy ruminations on all aspects of warfare. Two of the three articles cited from the nineteenth century discuss war of the future, on land and at sea, with a third discussing cavalry. Of the later articles, two deal with the South African War, and one of them, published in 1903, discusses the outcome of the official inquiry into the War. Bloch is also discussed in a lengthy obituary published in 1902, but the bulk of the articles deal with issues such as military theory or the utility of Britain fielding an expeditionary force. Two deal with German military affairs, including a reaction to Alfred von Schlieffen's work on future warfare, discussed

[12] Sullivan, "Victorian and Edwardian," 131.

[13] Sullivan, "Victorian and Edwardian," 133.

in Chapter Seven. Finally, and most notably, *The Fortnightly Review* published Wells' *Anticipations* in 1901, which was nothing short of revolutionary, as also discussed in Chapter Seven.

Fourteen articles cited in this study are from *The Nineteenth Century* and its later incarnation *The Nineteenth Century and After* (predictably, this change in title happened from 1900 onwards). Taken as whole, the monthly periodical ran from 1877 to 1961, but was edited by James Knowles from its foundation until his death in 1908.[14] Knowles was a prominent figure over his long editorship, orchestrating a series of campaigns on diverse subjects such as opposition to a Channel Tunnel in 1882, and a focus on religious matters later in that decade.[15] In 1898 he launched a critique of the British Army and Navy, which is evident in the articles cited in this study, with three articles published in 1900-01 which were critical of British military performance in South Africa (two by Hale). Two earlier articles discussed the War in the Soudan and were also critical of British policy and conduct in the conflict.

The period 1898-99 sees three articles cited which argued for disarmament (two are by Sidney Low), broadly contemporaneous with the Czar's conference on the limitation of armaments. Two earlier articles cover military affairs, with a third on the future of Anglo-American affairs. The other later articles include a retrospective by Field-Marshal Roberts in 1905, and a piece on the future of Great Britain in 1906, which illustrates Sullivan's observation that Knowles was increasingly interested in Imperial policy in the last few years of his editorship.[16]

Twelve articles are cited from *The Contemporary Review*, which was first published in 1866, on a monthly basis. Although established as a periodical with a specific interest in theology, it grew into a journal with a wide coverage of subjects, and Sullivan considers

[14] Sullivan, "Victorian and Edwardian," 269; and Sullivan, "Modern Age," 465.

[15] Sullivan, "Victorian and Edwardian," 270-71.

[16] Sullivan, "Romantic Age," 23.

it not to be a narrowly focused literary periodical.[17] This is demonstrated by the broad range of relevant articles cited from *The Contemporary Review*, all of them published between 1891 and 1901. Two cover the Soudan and two others the South African War – one of which was written by Bloch. Three are on the theme of the 'dread' of war in the 1890, discussed at length in Chapter Three, including one on the Tsar's Peace Conference. One article cited is directed at the future of maritime warfare, written in 1894.

Twelve articles from the monthly *The Athenaeum* are cited in this study; a periodical which Sullivan characterises – until the twentieth century – as following "a moderate path in literary criticism."[18] After the turn of the century he considers that it began to publish significant contemporary fiction and poetry, until it ceased publication in 1915 after nearly a century in print. As perhaps understandable for a literary periodical, four of the references in this study relate to reviews on books about the South African War. There is also a review of Wells' *The War in the Air* in 1908, although there are no references to other examples of fiction on future war. The other articles are spread throughout the period 1870 to 1905, and cover the Franco-German and Russo-Japanese Wars. One piece written in the late nineteenth century discussed the history of cavalry and another future fuels. Altogether, the articles are more diverse than many of the other periodicals mentioned above, which often concentrate on specific issues or causes of one sort or another.

Ten articles from *The Academy* are also cited in this study; which was a weekly publication after 1871; it began publication in 1869 and ran until 1915 – with a short-lived resurrection in 1916.[19] Wells characterised the periodical (under a pseudonym) as dignified, worthy and representative of British intellectual culture, in his novel *Tono-Bungay.*[20] This changed in the late 1890s and early 1900s, however, as the periodical had numerous editors. The articles cited in this study range from 1876 to 1913, and are

[17] Sullivan, "Victorian and Edwardian," 77.

[18] Sullivan, "The Romantic Age," 1.

[19] Sullivan, "Victorian and Edwardian," 3.

[20] Sullivan, "Victorian and Edwardian," 4.

very varied in their subject matter. They include an analysis of artillery after the Franco-German War, an early review of cavalry – in 1877, long before the outpouring of interest in the subject after the turn of the century, a review of the novel *The Great War of 189-*, and a treatise on Bloch in 1899. After 1900 there is a review of Wells' *Anticipations*; a piece on the Russo-Japanese War in 1905; another on the role of cavalry in the First Balkan War in 1913; and a review of Beca's book on military tactics in 1911 (which eccentrically advocated the use of columnal assaults on the eve of the First World War).

The Speaker was established in 1890 as a Gladstonian liberal intellectual weekly periodical, after *The Spectator* shifted its political stance to Unionism.[21] It carried a wide range of political articles but was never very successful, and ceased publication in 1907.[22] The eight articles cited here illustrate its liberal interests, including four articles in the 1890s on fears of a European Great War, and one concerned with the perceived decline of society and the future, entitled 'A Senile World'. Those from the 1900s are more diverse, with one on colonisation of Africa, another on the rising economic importance of the United States, and one on German criticism of British military performance in South Africa.

Macmillan's Magazine is cited seven times, and ran from 1859 to 1907, with only four editors throughout its lifetime.[23] It was a monthly periodical and one which attained a reputation for publishing works of literary value in the 1880s, although it began to be seen as conservative (in taste rather than politics) in its latter decades, and not moving with the times.[24] It included, as a matter of course, articles on politics, history and literature. The two articles from the 1890s both deal with 'the dread of war' while the remaining five are from the 1900s, focused on the South African View, and particularly French and German views of its conduct. One of the others is a review of Le Queux's

[21] Laura Brake, ed. *Dictionary of Nineteenth Century Journalism* (London: Academia Press & British Library, 2009), 587.
[22] Brake, "Dictionary," 587.
[23] Sullivan, "Victorian and Edwardian," 215.
[24] Sullivan, "Victorian and Edwardian," 218.

Invasion of 1910, and the articles show the range of the interests of *Macmillan's Magazine.*

The Monthly Review had a short life compared to most of the periodicals discussed above, only from 1900 to 1907.[25] Under its first editor, Newbolt, the South African War and military reform were topics of particular interest, which is noticeable in five of the seven articles cited in this study. These include four on the use of cavalry following the South African War, although three of them are the work of two authors (under the pseudonyms Cavalry and Eques) arguing over cavalry armament, as discussed in Chapter Four. The only later article, falling during the period of Hanbury-Williams' editorship, is concerned with potential formation of a national army.

The National Review began its life in 1883 as a broadly Conservative periodical, although it had no formal ties to the party.[26] Conservatism pervaded the periodical, in terms of literary criticism and politics, although its considerable interest in women's suffrage in the 1880s covered both sides of the argument. From 1893 Leopold Maxse became the editor, a position he was to hold until the 1920s, and he advocated tariff reform, a militarily strong Britain, and friendship with France to counterbalance what he saw as the rising threat of Germany to European peace.[27] As with *The Contemporary Review,* the articles cited from *The National Review* are largely clustered around the turn of the century, with four of the six cited being specifically interested in the South African War, Bloch (written by his nemesis, Colonel Maude) and the Tsar's efforts at peace. A fifth is concerned with England's vulnerability at time of war to its food supply, while a sixth - written shortly after *The National Review* began publication – bemoaned Britain's unpreparedness for war.

Six articles are cited in *Chambers's Journal,* which was founded in the 1830s and was to remain in publication until 1956. Sullivan considers it a significant periodical which

[25] Sullivan, "Victorian and Edwardian," 229.

[26] Sullivan, "Victorian and Edwardian," 242.

[27] Sullivan, "Victorian and Edwardian," 245.

published a wide range of articles on literature and science, and fiction, throughout its long life.[28] This is evident in the articles cited, which cover the Russo-Turkish War, the fear of war in the 1890s, and the potential impact of telegraphy and Lyddite shells in warfare. One article is concerned with the museum established in Bloch's name after his death, in Switzerland.

Although it is clear that certain of the periodicals discussed above focused on particular issues, such as on Bloch in *The Review or Reviews* or the armament of the cavalry in *The Saturday Review*, it is more striking that subjects such as the wars in Soudan and South Africa, or the 'dread' of European conflict in the 1890s, reached across multiple publications, regardless of their political allegiances. In that way, they represent a window onto contemporary concerns about the future, and especially that of war, between 1870 and 1914.

[28] Sullivan, "Romantic Age," 93.

Appendix B Research Ethics Review Checklist

This Appendix contains a signed copy of the relevant Form UPR16 Research Ethics Review Checklist, below.

FORM UPR16

Research Ethics Review Checklist

UNIVERSITY OF PORTSMOUTH

Please include this completed form as an appendix to your thesis (see the Research Degrees Operational Handbook for more information

Postgraduate Research Student (PGRS) Information			**Student ID:**	UP633680
PGRS Name:	David Bangert			
Department:	History	**First Supervisor:**	Professor Brad Beaven	
Start Date: (or progression date for Prof Doc students)	**01/10/2014**			
Study Mode and Route:	Part-time ☒ Full-time ☐	MPhil ☐ PhD ☒	MD ☐ Professional Doctorate ☐	

Title of Thesis:	Interrogating the Future: Imagining War in an Age of Change, 1870-1914
Thesis Word Count: (excluding ancillary data)	81,539

If you are unsure about any of the following, please contact the local representative on your Faculty Ethics Committee for advice. Please note that it is your responsibility to follow the University's Ethics Policy and any relevant University, academic or professional guidelines in the conduct of your study

Although the Ethics Committee may have given your study a favourable opinion, the final responsibility for the ethical conduct of this work lies with the researcher(s).

UKRIO Finished Research Checklist:
(If you would like to know more about the checklist, please see your Faculty or Departmental Ethics Committee rep or see the online version of the full checklist at: http://www.ukrio.org/what-we-do/code-of-practice-for-research/)

a) Have all of your research and findings been reported accurately, honestly and within a reasonable time frame?	YES ☒ NO ☐
b) Have all contributions to knowledge been acknowledged?	YES ☒ NO ☐
c) Have you complied with all agreements relating to intellectual property, publication and authorship?	YES ☒ NO ☐
d) Has your research data been retained in a secure and accessible form and will it remain so for the required duration?	YES ☒ NO ☐
e) Does your research comply with all legal, ethical, and contractual requirements?	YES ☒ NO ☐

Candidate Statement:

I have considered the ethical dimensions of the above named research project, and have successfully obtained the necessary ethical approval(s)

Ethical review number(s) from Faculty Ethics Committee (or from NRES/SCREC):	ETHICS-2020-777

If you have *not* submitted your work for ethical review, and/or you have answered 'No' to one or more of questions a) to e), please explain below why this is so:

Signed *(PGRS)*:	DavidBSt	**Date:** 29/09/2020

UPR16 – April 2018

Bibliography

Primary Sources

Primary sources have been divided into:

Books.

Articles, from periodicals and newspapers, unattributed to a specific author.

Articles, from periodicals and newspapers, attributed to a named author, including pseudonymous authors.

Books

Angell, Norman. *The Great Illusion*. New York and London: G P Putnam's Sons, 1913.

Bloch, J. S. *Is War Now Impossible? Being an Abridgement of "War of the Future in its Technical, Economic and Political Relations."* London: Grant Richards, 1899.

Chesney, George Tomkyns. "The Battle of Dorking: Reminiscences of a Volunteer." In *The Tale of the Next Great War, 1870-1914: Fictions of Future Warfare and of Battles Still-to-come* edited by Clarke, I. F., 27-73. Liverpool: Liverpool University Press, 1995.

Colomb, P., Maurice, J. F., Maude, F. N., Forbes, A., Lowe, C, Christie Murray, D. and Scudamore, F. *The Great War of 189- : A Forecast.* London: William Heinemann, 1895 [First published in 1892]. Accessed on 23 January 2020, www.gutenberg.org.

Le Queux, William. *The Great War in England in 1897*. London: Tower Publishing Company, 1895 [First published in 1894]. Accessed on 14 January 2020, www.gutenberg.org.

Le Queux, William. *The Invasion of 1910.* Toronto: Macmillan, 1906. Accessed on 17 January 2020, www.gutenberg.org.

Maude, F.N. *War and the World's Life*. London: Smith Elder & Co., 1907.

Von Bernhardi, Friedrich. *Cavalry in Future Wars*. Translated by Charles Sydney Goldman. New York: E P Dutton & Co., 1906.

Von Bernhardi, Friedrich. *Germany and the Next War*. London: Edward Arnold, 1914.

Von der Goltz, Wilhelm Leopold Colmar. *The Nation in Arms*. London: W H Allen, 1887.

Wells, H.G. *The War in the Air*. London: Penguin Classics, 2005 [First published 1908].

Wells, H.G. *The War of the Worlds*. London: Penguin Classics, 1946 [First published in serial form 1897].

Unattributed to a Specific Author

"The Alleged Atrocities in the Soudan." *The Review of Reviews*. February 1899, 138.

"Armageddon in the Air." *The Review of Reviews*. August 1908, 155.

"The Army Estimates." *The Saturday Review*. March 11, 1899, 293-294.

"Art IV. Gunpowder & Modern Warfare." *The Dublin Review*. October 1879, 364-399.

"At Omdurman." *Dundee Evening Telegraph*. January 4, 1899, 3.

"Bloch." *Saturday Weekly Standard & Express*. March 17, 1900, 10.

"Boer Tactics and German Critics." *The Speaker*. February 10, 1906, 460-461.

"Books About the War." *The Athenaeum*. December 8, 1900, 754-755.

"Books on the War." *The Athenaeum*. April 20, 1901, 496-497.

"Books on the War." *The Athenaeum*. June 15, 1901, 775.

"Books on the War." *The Athenaeum*. October 25, 1902, 549.

"The British Army and Modern Conceptions of War." *The Journal of the Royal United Services Institution.* September 1911, 1181-1204.

"British Atrocities in the Soudan." *The Review of Reviews*. January 1899, 47-48.

"A British View of German Manœuvres." *The Review of Reviews*. October 1906, 384.

"Can England Easily Bear the Cost of a Great War?" *Fraser's Magazine*. May 1878, 537-547.

"Cavalry and the Arme Blanche." *The Times*. May 17, 1910, 4.

"Cavalry in Future Wars." *The Athenaeum*. November 10, 1906, 573-574.

"Cavalry in Modern War." *The Saturday Review*. February 23, 1885, 285.

"Cavalry Tactics." *The Saturday Review*. April 20, 1878, 505-506.

"The Church of the Future." *The Review of Reviews*. February 1892, 156.

"The City of the Future – the Immediate Future in England." *Journal of the Society of Architects*. December 1910, 71-75.

"Colonel Maude vs M. de Bloch." *The Review of Reviews*. May 1901, 472.

"The Combat at Plevna." *The Journal of the Royal United Services Institution.* 1878 (Volume 96), 745-756.

"The Conduct of the War: Severe Criticism." *The Review of Reviews*. May 1900, 453-454.

"Current Literature." *The Shields Daily Gazette & Shipping Telegraph*. May 29, 1899, 4.

"Dismounted Action of Cavalry in Training and in the Field." *The Cavalry Journal*. January 1908, 87-95.

"Dreams of the Twentieth Century." *The Review of Reviews*. April 1894, 394-395.

"Dyke's Lecture on Tactics." *The Saturday Review*. April 15, 1882, 472-474.

"The Effects of the New Rifles in War." *The Huddersfield Daily Chronicle*. September 15, 1892, 4.

"England's Unreadiness for War." *The National Review*. April 1887, 153-169.

Field Service Regulations Part I Operations. London: HM Stationery Office, 1912 [Reprint of 1909 Edition].

"The Fighting of the Future." *The Examiner and London Review*. December 10, 1870.

"The First Battle in the Air." *The Review of Reviews*. June 1908, 572.

"Forecasts of the Coming Century." *London Quarterly Review*. October 1897, 189-190.

"Foreseeing the Future." *The Saturday Review*. February 1, 1902, 135-136.

"The Future and What It Hides In It." *The Review of Reviews.* February 1890, 115-116.

"The Future of America." *The Review of Reviews*. January 1898, 85.

"The Future of China and Japan." *The Review of Reviews*. March 1895, 237.

"The Future of England: her Industrial Doom Being Sealed." *The Review of Reviews*. December 1900, 554.

"The Future of the English Speaking People." *The Review of Reviews.* September 1896, 224.

"The Future of Field Artillery." *The Saturday Review*. November 19, 1881, 633-634.

"The Future of International Arbitration." *The Review of Reviews*. September 1892, 269.

"The Future of Our Cavalry." *Blackwood's Edinburgh Magazine*. May 1901, 715-726.

"The Future of the British Army." *The Review of Reviews*. January 1900, 40-41.

"The Future of the Jew." *The Outlook*. December 29, 1900, 696-697.

"The Future of War." *The Walsall Advertiser*. October 21, 1899, 6.

"German Cavalry and the Lessons of the Russo-Japanese War." *The Cavalry Journal*. April 1907, 220-224.

"German Ideas on the Role and Employment of Cavalry." *The Journal of the Royal United Services Institution.* July 1904, 825-831.

"German Influence on British Cavalry." *The Saturday Review*. October 21, 1911, 525.

"The German Staff on the Boer War." *The Monthly Review*. April 1904, 1-10.

"German Views on Mounted Infantry." *The Cavalry Journal*. July 1907, 347-351.

"Go Ahead! John Bull: A Supplement to the Review of Reviews." *The Review of Reviews*. February 1906, 197.

"A History of Cavalry from the Earliest Times: with Lessons for the Future." *The Athenaeum*. June 2, 1877, 698-700.

"Home Office District Technical and War Game Society." *The Journal of the Royal United Services.* November 1893, 1226-1241.

"How New York was Destroyed by Airship." *The Review of Reviews*. July 1908, 45.

"How the World Takes Americanisation." *The Review of Reviews*. April 1902, 418-419.

"How to Wake Up John Bull." *The Review of Reviews*. March 1900, 310.

"How to Wake Up John Bull." *The Review of Reviews*. January 1902, 94.

"In AD 2000." *The Academy*. November 23, 1901, 476-478.

"Infantry Tactics." *The Academy*. April 29, 1911, 517.

"In the Future." *Chambers's Journal of Popular Literature, Science and Arts*. April 6, 1895, 209-211.

"Is War Becoming Less Deadly?" *The Review of Reviews*. August 1905, 173.

"Last Lessons of the War." *The Review of Reviews*. July 1902, 67.

"Lessons of the War." *The Saturday Review*. February 23, 1878, 235-236.

"Literary Gossip." *The Athenaeum*. August 12th, 1871, 205.

"Literary Notices: M. Bloch on War." *The Sheffield & Rotherham Independent*. February 14, 1900, 2.

"Literature of the War." *The Outlook*. May 5, 1900, 442.

"Long-Range Infantry Fire." *The Saturday Review*. December 18, 1880, 764-766.

"Long-Range Rifle-Fire." *The Saturday Review*. July 4, 1885, 17-18.

"Lyddite – The New Explosive." *Chamber's Journal*. December 31, 1898, 72-73.

"M. Bloch." *The Review of Reviews*. February 1902, 160-161.

"M. Bloch and the War." *Freeman's Journal & Daily Commercial Advertiser*. December 17, 1899, 4.

"M. de Bloch on War." *The Morning Post*. November 11, 1899, 3.

"M. de Bloch on Army Reform." *The Review of Reviews*. December 1901, 614.

"M. Zola on War." *The Review of Reviews*. August 1900, 167.

"Military Lessons of the War." *The Examiner*. August 1870, 553.

"The Military Lessons of the War." *The Saturday Review*. September 9, 1905, 384.

"Military Manoeuvres." *The Saturday Review*. September 27, 1890, 363-364.

"The Military Officer of the Future." *The Saturday Review*. July 5, 1873, 17-18.

"The Miseries of War: Notes from Sedan and Bazeilles." *The Saint Pauls Magazine*. September 1871, 509-524.

"The Modern Rifle." *The Speaker: the Liberal Review*. February 8, 1890, 141-142.

"Modern Weapons and Modern War." *The Saturday Review*. September 28, 1878, 397-399.

"Mounted Infantry." *The Saturday Review*. September 24, 1881, 388-389.

"National Life and Character." *The Edinburgh Review*. October 1893, 277.

"The Next War." *The Speaker: the Liberal Review*. June 9, 1894, 634-635.

"The Next War in the Light of Omdurman." *The Saturday Review*. September 17, 1898, 369-370.

"The Nightmare of the German General Staff." *The Review of Reviews*. February 1909, 113-115.

"The Official Report on the Salisbury Manoeuvres." *The Journal of the Royal United Services Institution.* March 1899, 293-304.

"Omdurman." *Dundee Courier*. September 6, 1898, 5.

"Omdurman" *Fun!* September 13, 1898, 84.

"Omdurman." *South Wales Daily News*. October 13, 1898, 5.

"Omdurman." *Nottingham Evening Post*. January 7, 1899, 4.

"Omdurman: the Battle Described. "*The Daily News*. September 23, 1898, 2.

"On the Edge of the Future." *The Review of Reviews*. July 1893, 40.

"On the War." *The Review of Reviews*. February 1900 131-135.

"Our Defence." *The Illustrated News*. September 1871, 168-171.

"Oxford's Response to the Czar's Message." *Jackson's Oxford Journal*. March 11, 1899, 7.

"The Peace Conference." *The Standard*. May 15, 1899, 7.

"Peace Prospects in Europe." *The Speaker: the Liberal Review*. January 7, 1893, 7-8.

"Piercing the Veil in Manchuria." *The Academy*. November 25, 1905, 1224-1225.

"The Place of the Mitrailleur in War." *The Saturday Review*. September 3, 1870, 296-297.

"The Possibility of Making Use of Balloons and Motor Air-ships in the Navy." *The Journal of the Royal United Services Institution*. November 1908, 1502-17.

"The Possibility of Making Use of Balloons and Motor Air-ships in the Navy." *The Journal of the Royal United Services Institution*. December 1908, 1653-1675.

"The Progress of the World." *The Review of Reviews*. October 1898, 327-335.

"The Progress of the World." *The Review of Reviews*. November 1910, 417-435.

"The Promise of Science: a Symposium of Eminent Scientists on the Factors, Food and Forces of the Future." *Strand Magazine*. December 1904, 668-674.

"The Prophecies of Edison; or, Visions of Things to Come." *The Review of Reviews*. March 1897, 246-247.

"The Real Lessons of the War." *The Review of Reviews*. March 1901, 267.

"The Religious Future of the Negro." *The Review of Reviews*. June 1910, 534.

"Review: Cavalry in Future Wars." *The Cavalry Journal*. January 1907, 83-89.

"Review: Danger!" *The Review of Reviews*. August 1914, 109-110.

"Review of Social Evolution by Benjamin Kidd." *The Edinburgh Review*. April 1894, 479-511.

"Review: The Battle of Dorking." *The Saturday Review*. May 6, 1871, 563-564.

"Review: The Battle of Dorking." *The Musical Standard*. September 23, 1871.

"Review: The Great War of 189-." *The Saturday Review*. December 31, 1892, 776.

"Review: The Great War of 189-." *The Academy*. September 9, 1893, 203-204.

"Review: The Great War of 1897." *The National Observer*. September 15, 1894, 465-466.

"Review: The Invasion of 1910." *The New London Journal*. May 10, 1906, 10.

"Review: The Invasion of 1910." *The Saturday Review*. August 4, 1906, 148.

"Review: The Invasion of 1910." *The Athenaeum*. August 11, 1906, 156.

"Review: The War in the Air." *The Athenaeum*. November 14, 1908, 2.

"Review: The War in the Air." *The Saturday Review*. November 14, 1908, 614-616.

"Review: The War in the Air." *The Bookman*. December 1908, 158.

"The Russo-Turkish War." *Lancaster Gazette*. September 22, 1877, 5.

"The Russian Cavalry in the Russo-Japanese War." *The Cavalry Journal*. July 1911, 283-230.

"Science and Slaughter." *Chamber's Journal*. May 22, 1897, 324-326.

"Science and War." *The Athenaeum*. September 3, 1870, 312.

"Science: Fuel." *The Athenaeum*. March 9, 1912, 286.

"A Senile World." *The Speaker*. January 23, 1893, 97-98.

"The Service of Communication in the Light of the Experience of the Russo-Japanese War." *The Journal of the Royal United Services Institution*. March 1908, 968-970.

"Some Forecasts of Science." *Chambers's Journal*. August 18, 1900, 593-595.

"Some Lessons of the Boer War." *The National Review*. August 1900, 1025-1038.

"Some Lessons of the War." *The Examiner*. September 22, 1877, 1193-1194.

"Thoughts Suggested by the War." *Blackwood's Edinburgh Magazine*. December 1870, 774-791.

"The True Cavalry Spirit." *The Saturday Review*. October 8, 1904, 463-464.

"Two Dips into the Future." *The Review of Reviews*. September 1899, 295.

"Under Fire." *Chamber's Journal*. January 19, 1878, 44-47.

"Wake Up! John Bull." *An Illustrated Supplement to the Review of Reviews*. March 10, 1900, 310.

"Wake Up! John Bull." *An Illustrated Supplement to the Review of Reviews*. January 10, 1902, 94.

"Wake Up! John Bull." *An Illustrated Supplement to the Review of Reviews*. November 15, 1902, 536-538.

"War and Science." *The Examiner.* February 9, 1878, 168-170.

"War and Telegraphy." *Chambers's Journal*. November 24, 1877, 737-739.

"War and the Arme Blanche." *The Saturday Review*. May 28, 1910, 693-694.

"War and the Arme Blanche." *The Cavalry Journal*. July 1910, 283-287.

"War and the Arme Blanche: the General Staff's Views on Mr Childer's Book." *The Journal of the Royal United Services Institution.* August 1910, 1059-1067.

"War is Suicide." *The Academy*. October 7, 1899, 363-364.

"The War in the Far East." *The Quarterly Review*. January 1905, 280-308.

"The War in the Far East." *The Athenaeum*. November 4, 1905, 606.

"The War of 1870." *The Saturday Review*. July 23, 1870, 100-101.

"The War of 1870." *The Saturday Review*. October 1, 1870, 417-419.

'The War of the Future." *The Review of Reviews*. September 1899, 255.

"The War of the Future." *The Walsall Advertiser*. October 21, 1899, 6.

"The War of the Future." *The Review of Reviews*. September 1901, 281.

"The War of the Future." *The Review of Reviews*. January 1905, 46.

"The War Office Guide to Tactics." *Saturday Review*. November 15, 1873, 640-641.

"War Theorists Confuted." *The Outlook*. December 2, 1899, 563-

"Why War is Impossible for England." *The Review of Reviews*. February 1903, 149.

"Will the Airship Destroy Civilisation." *The Review of Reviews*. December 1908, 566.

"Will the Future Belong to the Cannibals." *The Review of Reviews*. April 1895, 346.

"The Work of the Cavalry in the Balkan War." *The Cavalry Journal*. January 1914, 70-77.

"The World-State and the World-War." *The Speaker*. January 14, 1899, 48-49.

Attributed to a Specific Author

Addams, Jane. "The Dynamic of Peace." *The Review of Reviews*. February 1907, 175.

Alison, A. "Armed Europe: How Coming Events Cast Their Shadows Before," *Blackwood's Edinburgh Magazine*. December 1893, 755-764.

Angell, Norman. "The Place of Military Force in Modern Statecraft." *The Journal of the Royal United Services Institution.* November 1913, 1425-1451.

Applin, R. V. K. "Machine Guns with Cavalry." *The Cavalry Journal*. July 1907, 320-325.

B. C. S. "The Battle of Omdurman." *The Saturday Review*. September 17, 1898, 383.

Baden-Powell, B. "How Airships are Likely to Affect War." *The Journal of the Royal United Services Institution.* May 1910, 555-581.

Baden-Powell, B. "Kites: Their Use in War." *The Journal of the Royal United Services.* September 1895, 887-902.

Baden-Powell, R. "What Lies Before Us." *The Cavalry Journal*. January 1906, 2-11.

Ballard, G. J. "A Study of the Late M. Jean de Bloch's Theories as Applied to the Question of Sea Power." *The Journal of the Royal United Services Institution.* August 1902, 1047-1053.

Barker, J. Ellis. "The Future of Great Britain." *The Nineteenth Century*. November 1906, 689-705.

Barrow, Sir Edmund. "The Fallacies of *The Great Illusion*." *The Journal of the Royal United Services Institution.* February 1914, 169-203.

Battine, C. W. "The Use of the Horse Soldier in the Twentieth Century." *The Journal of the Royal United Services Institution*. March 1908, 309-320.

Battine, Cecil. "Our Duty to Our Neighbour: the Defence of France." *The Fortnightly Review.* June 1909, 1059-68.

Beevor, W. C. "The Working of the Roentgen Ray in Warfare." *The Journal of the Royal United Services Institution.* October 1898, 1152-70.

Bengal Lancer. "The Combination of Shock with Dismounted Fire Action." *The Cavalry Journal*. January 1909, 75-79.

Bennett, Ernest N. "After Omdurman." *The Contemporary Review*. January 1899, 18-33.

Benson, G. F. "The Tactical Operations of the Future." *The Journal of the Royal United Services Institution*. April 1891, 395-454.

Beresford, C. F. C. "The Telephone at Home and in the Field." *The Journal of the Royal United Services Institution*. April 1892, 347-368.

Birkbeck, W. H. "The Russo-Japanese War. - I" *The Cavalry Journal*. October 1908, 501-517.

Birkbeck, W. H. "The Russo-Japanese War. - II" *The Cavalry Journal*. January 1909, 32-46.

Birkbeck, W. H. "The Russo-Japanese War. - III" *The Cavalry Journal*. April 1909, 186-194.

Birkbeck, W. H. "The Russo-Japanese War. - IV" *The Cavalry Journal*. July 1909, 298-307.

Blennerhassett, Rowland. "Aspects of Strategy and Tactics." *The Fortnightly Review*. August 1908, 233-243.

Bloch, Jean de. "Letter to the Times." *The Times*. February 28, 1901, 7.

Bloch, Jean de. "The Real Lessons of the War." *The Review of Reviews*. March 1901, 367-

Bloch, Jean de. "Some Lessons of the Transvaal War." *The Contemporary Review*. Apr 1900, 457-471.

Bloch, Jean de. "The Transvaal War: Its Lessons in Regard to Militarism and Army Re-Organisation (Part I)." *The Journal of the Royal United Services Institution.* December 1901, 1316-1344.

Bloch, Jean de. "The Transvaal War: Its Lessons in Regard to Militarism and Army Re-Organisation (Part II)." *The Journal of the Royal United Services Institution.* November 1901, 1413-1451.

Bloch, Jean de. "The War of the Future." *The Review of Reviews*. September 1901, 281.

Bloch, J. S. "The Wars of the Future." *The Contemporary Review*. September 1901, 305-32.

Boeresen, P. "Machine Guns with Cavalry." *The Cavalry Journal*. January 1912, 34-46.

Boothby, F. L. M. "Aircraft for Sea Service." *The Journal of the Royal United Services Institution.* May 1912, 751-780.

Boys, C. V. "Of the Photography of Flying Bullets by the Light of the Electric Spark." *The Journal of the Royal United Services.* August 1893, 855-873.

Brackenbury, C. B. "Ironclad Field Artillery." *The Nineteenth Century*. July 1878, 40-50.

Brackenbury, C. B. "The Latest Development of the Tactics of the Three Arms." *The Journal of the Royal United Services Institution.* 1883 (Volume 120), 439-465.

Brackenbury, H. "The Tactics of the Three Arms as Modified to Meet the Requirements of the Present Day." *The Journal of the Royal United Services Institution.* 1873 (Volume 74), 618-647.

Breton, H. D'Arch. "Thoughts on Imperial Defence," *Blackwood's Edinburgh Magazine*, May 1895, 665-688.

Brooks, Sidney. "The War of the Titans for the Commercial Supremacy of the World VII Britain's Position – A Candid Criticism." *The Idler*. May 1902, 302-310.

Brown, H. Clifton. "The Increased Importance of Training our Cavalry in Mobility." *The Cavalry Journal*. October 1907, 446-455.

Burke, C. T. "Aeroplanes of Today and their Use in War." *The Journal of the Royal United Services Institution.* May 1911, 622-632.

Burke, C. T. and Ruck, C. B. "Aeroplanes of Today and their Use in War." *The Journal of the Royal United Services Institution.* May 1911, 622-632.

Cadell, J. F. "Theories as to the Best Position for Quick Firing Shielded Field Artillery. *The Journal of the Royal United Services Institution.* December 1906, 1477-85.

Caine, Hall. "The Old Century and the New." *The New Century Review*. December 1902, 428-438.

Camell. "Aeroplanes with Cavalry." *The Cavalry Journal*. April 1911, 197-199.

Campbell, Sir C. "The Training, Organisation, and Rapid Concentration of a Force to Resist Raids or Invasion by the Strategical Use of the Mono-Rail." *The Journal of the Royal United Services Institution*. December 1908, 1611-1629.

Capper, J. E. "Military Ballooning." *The Journal of the Royal United Services Institution.* July 1906, 890-909.

Cavalry. "The Cavalry and its Principal Arm." *The Monthly Review*. February 1904, 78-90.

Chasseur. "A Precis of the Russo-Japanese War." *Journal of the United Services Institute of India*. Vol XXXV, 1906, 18-26.

Churchill, W. S. "Some Impressions of the War in South Africa." *The Journal of the Royal United Services Institution.* July 1901, 835-840.

Clarke, G S. "War, Trade and Food Supply." *The National Review*. July 1897, 756-769.

Clarke, J. L. J. "Railways in Modern Warfare." *The Journal of the Royal United Services Institution.* April 1904, 406-411.

Clarke, William. "America's Economic Supremacy." *The Speaker*. November 10, 1900, 136-137.

Clarke, William. "The Social Future of England." *The Contemporary Review*. December 1900, 858-869.

Clarkson, T. "The Use of Motors for the Transport of Troops." *The Journal of the Royal United Services Institution.* April 1910, 450-464.

Clive, Edward. "On the Influence of Breech Loading Arms on Tactics, and on the Supply of Ammunition in the Field, Part I." *The Journal of the Royal United Services Institution.* 1878 (Volume 97), 814-830.

Clive, Edward. "On the Influence of Breech Loading Arms on Tactics, and on the Supply of Ammunition in the Field, Part II." *The Journal of the Royal United Services Institution.* 1878 (Volume 97), 831-863.

Colomb, P H. "First Impressions of the War." *The National Review*. June 1898, 523-535.

Colomb, P. H. "The Future of the Torpedo." *The Journal of the Royal United Services Institution.* December 1897, 1465-1489.

Cook, Keningdale. "The Logic of the Methods of War." *Dublin University Magazine*. November 1877, 513-523.

Coulthard, W. J. C. "The Bullet Wounds of Modern Warfare." *The New Century Review*. July 1900, 34-39.

Crutchley, W. C. "Modern Warfare as Affecting the Mercantile Marine of Great Britain." *The Journal of the Royal United Services.* May 1893, 491-511.

Czerlieu, A. H. von. "The Lance as a Weapon of War." *The Journal of the Royal United Services Institution.* January 1903, 39-47.

Dalby, W. Burkitt. "Prophecy A Living Force." *The Wesleyan-Methodist Magazine*. November 1899, 803-809.

De Pree, H. "The Supply of Ammunition and Motor Transport." *The Journal of the Royal United Services Institution.* August 1912, 1149-1164.

De Watteville. "Motor Cycles for Military Purposes." *The Journal of the Royal United Services Institution.* March 1904, 245-254.

Des Barrow, G. "The Spirit of Cavalry." *The Cavalry Journal*. January 1906, 12-23.

Diplomati. "The Vanishing of Universal Peace." *US Fortnightly Review*. May 1899, 871-880.

Doyle, A. Conan. "Danger!" In *The Tale of the Next Great War, 1870-1914: Fictions of Future Warfare and of Battles Still-to-come,* edited by I. F. Clarke, 293-320. Liverpool: Liverpool University Press, 1995.

Doyle, A. Conan. "Some Military Lessons of the War." *The Cornhill Magazine*. October 1900, 433-446.

Doyle, A. Conan. "The Military Lessons of the War: A Rejoinder." *The Cornhill Magazine*. January 1901, 43-51.

Escott, T. H. S. "Mobilization, Political and Military." *The New Century Review*. December 1899, 487-494.

Esebek, Baron von. "The Shortcomings of the Russian Cavalry on the Yalu in the Spring of 1904." *The Cavalry Journal*. January 1910, 47-54.

Eskdale, H. "The Coming Revolution in Tactics and Strategy." *The Contemporary Review*. August 1892, 245-257.

Eques. "The Cavalry and its Principal Arm." *The Monthly Review*. December 1903, 50-73.

Eques. "The Cavalry and its Principal Arm." *The Monthly Review*. April 1904, 98-112.

Eques. "Cavalry on the Battlefield." *The Cavalry Journal*. April 1908, 134-145.

Fletcher, H. C. "The Employment of Mitrailleurs During the Recent War, and their Use in Future Wars." *The Journal of the Royal United Services Institution.* 1872 (Volume 66), 28-57.

Forbes, Archibald. "The Warfare of the Future." *The Nineteenth Century: A Monthly Review*. May 1891, 782-795.

Fortescue, J. W. "The War Commission – and After. I. Ministerial Responsibility." *Macmillan's Magazine*. November 1903, 71-80.

Fosebery, G. V. "Magazine Rifles." *The Journal of the Royal United Services Institution.* 1882 (Volume 116), 456-44.

Fosebery, G. V. "The Phonograph and its Application to Military Purposes." *The Journal of the Royal United Services.* September 1893, 989-999.

Fraser, Keith. "European Cavalry." *The Fortnightly Review.* Oct 1884.

Freeth, C. J. D. "Automatic Rifles." *Journal of the United Services Institute of India*. Vol XLI, 1912, 345-359.

Fuller, J. F. C. "The Tactics of Penetration." *The Journal of the Royal United Services Institution.* August 1914, 378-389.

Fullerton, J. D. "Aeronautical Progress." *The Journal of the Royal United Services Institution.* March 1913, 305-342.

Fullerton, J. D. "Modern Aerial Navigation." *The Journal of the Royal United Services Institution*. July 1892, 719-749.

Fullerton, J. D. "Recent Progress in Aerial Navigation." *The Journal of the Royal United Services Institution*. January 1907, 11-54.

Garvin, J. L. "Imperial and Foreign Affairs." *The Fortnightly Review*. February 1909, 197-214.

Gatacre, W. "After the Atbara and Omdurman." *The Contemporary Review*. Feb 1899, 299-304.

Gatling, R. J. "Machine Guns: the Gatling Battery - the Agra and Claxton Guns – the French and Montigny Mitrailleurs." *The Journal of the Royal United Services Institution.* 1870 (Volume 60), 504-528.

Geffcken, H. "The Future of Maritime Warfare." *The Contemporary Review*. January 1894, 29-45.

Gerwein. "Fortress Warfare of the Future." *The Journal of the Royal United Services Institution.* December 1910, 1623-31.

Godfrey-Fawcett, E. G. "Wireless Telegraphy for Cavalry Use." *The Cavalry Journal*. July 1908, 291-299.

Goldman, Charles Sydney. "Cavalry: its True Functions in Modern War." *The Cavalry Journal*. January 1906, 65-79.

Goltz, Baron Colmar von der. "What Can We Learn from the Boer War." *The Journal of the Royal United Services Institution.* December 1902, 1534-39.

Gower, Frederic. "A System of Air Torpedoes: With Remarks Upon the Late Attempts at Air Navigation for War Purposes." *The Journal of the Royal United Services Institution.* 1885 (Volume 131), 857-873.

Grace, R. S. Hamilton. "Cavalry in the Russo-Japanese War." *The Cavalry Journal*. April 1910, 213-219.

Greenwood, Frederick. "The Anglo-American Future." *The Nineteenth Century*. July 1898, 1-11.

Greenwood, Frederick. "The Great War: or, Civilisation its own Executioner," *Macmillan's Magazine*. October 1893, 414-424.

Griffiths, Arthur. "The Future of the Army." *The Fortnightly Review*. October 1903, 627-637.

Gutner, E. "Von Lobell's Annual Reports on the Changes and Progress in Military Matters in 1899." *The Journal of the Royal United Services.* November 1900, 1294-1327.

Hale, Lonsdale. "A Sketch of War as it Will Be." *The Journal of the Royal United Services Institution*. 1887 (Volume 138), 163-257.

Hale, Lonsdale. "Our Peace Training for War. Guilty or Not Guilty." *The Nineteenth Century*. February 1900, 227-243.

Hale, Lonsdale. "The Professional Study of Military History." *The Journal of the Royal United Services Institution.* June 1897, 690-721.

Hale, Lonsdale. "The Staff Work in the War." *The Nineteenth Century*. September 1900, 357-372.

Harrison, W. H. "The Invasion of England: Should London be Fortified." *The Journal of the Royal United Services Institution.* February 1897, 167-200.

Hayter, H. R. "The Employment of Mechanical Transport for Military Purposes." *The Journal of the Royal United Services Institution*. June 1910, 720-736.

Henderson. "Lessons from the Past for the Present." *The Journal of the Royal United Services.* November 1894, 1207-1235.

Henwood, Charles F. "Ironclads, Present and Future." *The Journal of the Royal United Services Institution.* 1870 (Volume 58), 148-174.

Hepworth, W. H. Campbell, "Meteorology: A Factor in Naval Warfare." *The Journal of the Royal United Services.* June 1896, 669-690.

Herbert, W. V. "The Infantry Drill-Book, as Illustrated by the Battles Around Plevna." *The Journal of the Royal United Services Institution.* November 1899, 1202-1220.

Hildyard, H. "Colonel v, Lobell's Annual Reports Upon the Changes and Progress in Military Matters During 1888." *The Journal of the Royal United Services Institution.* 1889 (Volume 150), 1043-1075.

Holden, H. C. L. "The Standardization of Mechanically Propelled Commercial Vehicles for Military Purposes in Time of War." *The Journal of the Royal United Services Institution.* October 1913, 1313-1318.

Hopkins, Sir J. O. "A Few Naval Ideas for the Coming Century." *The Journal of the Royal United Services.* January 1901, 7-38.

Hutier, C. von. "The Fighting Value of Modern Cavalry." *The Cavalry Review*. April 1912, 211-216.

Huyshe, Wentworth. "The Omdurman Victory." *The Saturday Review*. September 10, 1898, 332-333.

Immanuel. "The Importance of Fighting Dismounted for Cavalry, and the Place to be Assigned to it in Action and Instruction." *The Cavalry Journal*. October 1911, 454-462.

Islander. "A British Army of Adventure." *The Fortnightly Review*. January 1914, 20-34.

James, Walter H. "The German Official History of the War in South Africa." *The Bookman*. April 1906, 30-31.

James, W. H. "Magazine Rifles, Developments and Effects." *The Journal of the Royal United Services Institution*. September 1892, 931-948.

James, Walter H. "Modern Fire: Its Influence on Armaments, Training and Tactics." *The Journal of the Royal United Services Institution.* 1880 (Volume 106), 378-403.

James, W. H. "Modern Weapons and their Influence on Tactics and Organisation." *The Journal of the Royal United Services Institution.* December 1899, 1289-1307.

James, W. H. "On Some Changes in Tactics Caused by the Increased Power of Modern Fire." *The Journal of the Royal United Services Institution.* 1884 (Volume 127), 925-940.

Jane, F. T. "The Jane Naval Game." *The Journal of the Royal United Services Institution.* February 1899, 148-160.

Jane, F. T. "Tactics in the Jane Naval War Game as Exhibited by Various Navies." *The Journal of the Royal United Services.* March 1900, 248-257.

Joffre, Joseph. *Memoires du Maréchal Joffre*. Paris: Librarie Plon, 1932.

Johnson, Bernard. "The Influence of Armament in Warfare." *Journal of the United Services Institute of India*. Vol XXXV, 1906, 27-31.

Johnstone, H. M. "How Not to Do It." *The Cavalry Journal*. October 1913, 404-414.

Kemball, Sir Arnold. "Lessons from the Late War." *The Journal of the Royal United Services Institution.* 1878 (Volume 98), 941-956.

Kennedy, J. N. C. "Wireless Telegraphy." *The Journal of the Royal United Services Institution.* November 1898, 1231-1248.

King-Hall, G. F. "New Naval Tactical Game." *The Journal of the Royal United Services.* October 1900, 1187-90.

Knollys, W. W. "Artillery Retrospect of the Last Great War, 1870, with its Lessons for Canadians." *The Academy*. September 16, 1876, 281-282.

Knollys, W. W. "War in the Future." *The Fortnightly Review*. August 1890, 274-281.

LL. "Cavalry in Modern Warfare." *The Academy*. January 25, 1913, 117-119.

Lambaet, E. "The Field Gun of the Future." *The Journal of the Royal United Services Institution*. October 1892, 1155-1170.

Lancer. "Motor Cycles with Cavalry." *The Cavalry Journal*. April 1911, 148-150.

Langlois, H. "The British Army in a European Conflict." *The Journal of the Royal United Services Institution.* July 1910, 903-917.

Lascelles, E. F. F. "The Airship and Flying Machine in War: their Probable Influence on the Role of Cavalry." *The Cavalry Journal*. April 1910, 208-213.

Laughton, J. K. "Scientific Instruction in the Navy." *The Journal of the Royal United Services Institution.* 1875 (Volume 81), 217-241.

Laughton, J. K. "The Scientific Study of Naval History." *The Journal of the Royal United Services Institution.* 1874 (Volume 79), 508-527.

Lawton, Lancelot. "A German View of the Turkish Defeat." *The Fortnightly Review*. May 1913, 975-982.

Le Mesurier, T. A. "Our Food Supply in Time of War." *Westminster Review*. June 1897, 658-668.

Liberticus. "France and Her Future." *The New Century Review*. October 1899, 282-287.

Lindsay, H. E. M and Friend, L. B. "Militia Engineers, their Origin, Development and Future." *The Journal of the Royal United Services Institution.* August 1906, 1000-12.

Lockyer, W. N. "Personal Reminiscences of the Evolution of Small Arms and Machine Guns from the year 1863 up to the Present Day." *The Journal of the Royal United Services Institution.* October 1898, 1121-1151.

London, Jack. "The Unparalleled Invasion." In *The Tale of the Next Great War, 1870-1914: Fictions of Future Warfare and of Battles Still-to-come*, edited by I. F. Clarke, 257-270. Liverpool: Liverpool University Press, 1995.

Long, R. E. C. "Jean de Bloch." *The Fortnightly Review*. February 1902, 228-236.

Low, Sydney. "The Future of the Great Armies." *The Nineteenth Century*. September 1899, 385-395.

Low, Sydney. "Should Europe Disarm." *The Nineteenth Century*. October 1898, 521-530.

Lowther, H. C. "The French Cavalry." *The Cavalry Journal*. April 1909, 195-207.

Lucius, "War Risks of the Future." *The Academy*. February 27th, 1915, 132.

M.A.M. "The War of the Future." *The Leisure Hour*. June 1899, 500-503.

Maguire, T. Miller. "The National Study of Military History." *The Journal of the Royal United Services Institution.* May 1897, 598-622.

Maguire, T. Miller. "Readiness or Ruin." *The Journal of the Royal United Services Institution.* December 1909, 1579-1606.

Mahan. "Blockade in Relation to Naval Strategy." *The Journal of the Royal United Services.* November 1895, 1057-1069.

Marsh, T. A. Perry, "Magazine Rifles – A Military Prospect." *The Journal of the Royal United Services Institution*. November 1891, 1167-1179.

Mason, Charlotte. "The Education of the Future." *M Murray's Magazine*. June 1889, 845-855.

Maude, F. N. "Continental Versus South African Tactics: A Comparison and Reply to Some Critics." *The Journal of the Royal United Services Institution.* March 1902, 318-354.

Maude, F. N. "M. Bloch as a Prophet." *The National Review*. March 1901, 102-114.

Maude, F. N. "M. Bloch's Fallacies." *Pall Mall Gazette*. May 18, 1900.

Maude, F. N. "The New French Strategy and the War." *The Saturday Review*. October 26, 1912, 512-513.

Maurice, F. "Omdurman." *The Nineteenth Century*. December 1898, 1048-1054.

Mayhew, M. J. and Smyth, Skeffington. "Motor Cars with the Cavalry Division." *The Cavalry Journal*. October 1909, 438-442.

Mayne, C. B. "The Difficulties of the Tactical Defensive, and How to Meet Them." *The Journal of the Royal United Services Institution.* September 1896, 1085-1104.

Mayne, C. B. "The Difficulties of the Tactical Defensive, and How to Meet Them." *The Journal of the Royal United Services Institution.* October 1896, 1189-1214.

McNalty, C. E. I. "Mechanically Propelled Vehicles for Military Purposes." *The Journal of the Royal United Services Institution.* November 1904, 1229-56.

Miles. "Lessons of the War." *The Contemporary Review*. February 1900, 153-173.

Molyneux, E. M. "Artillery Support of Infantry." *The Journal of the Royal United Services Institution.* November 1909, 1454-1470.

Molyneux, E. M. "Artillery Support of Infantry." *The Journal of the Royal United Services Institution.* December 1909, 1607-1617.

Molyneux, E. M. "The British Cavalry." *The Journal of the Royal United Services Institution*. October 1904, 1164-1171.

Morgan, G Osborne. "Peace or War." *The Contemporary Review*. October 1891, 469-476.

Morris, William O'Connor. "The Great War of 189-: A Forecast." *The Academy*. September 9, 1893, 203-204.

Morrison, C. G. "The Cavalry Exercises before and the Cavalry during the Manoeuvres of 1898." *The Journal of the Royal United Services Institution.* June 1899, 632-653.

Murray, Stewart L. "Our Food Supply in Time of War, and Imperial Defence." *The Journal of the Royal United Services Institution.* June 1901, 656-729.

Murray, Stewart L. "The Internal Condition of Great Britain during a Great War." *The Journal of the Royal United Services Institution.* December 1913, 1561-1615.

Nauticus. "Sea Power: Its Past and Future." *The Fortnightly Review.* December 1893, 849-868.

Ormsby-Johnson, F. C. "The Loose Order of Battle." *The New Century Review*. June 1900, 422-430.

Oswald, F. L. "Cities of the Future." *The Idler*. April 1896, 421-426.

Ovens, G. H. "Notes on the Most Obvious Lessons of the War in South Africa, with some remarks on the Practical training of British and Native troops." *Journal of the United Services Institute of India*. Vol XXIX, 1900, 317-332.

Particeps. "The Boer War Through German Glasses." *Macmillan's Magazine*. April 1904, 460-469.

Paynter, Hugh H. "The Use of the Motor Car in Warfare." *The Journal of the Royal United Services Institution.* June 1906, 766-784.

Perry, Charles Copland. "Our Undisciplined Brains – the War Test." *The Nineteenth Century*. December 1901, 894-904.

Percy, John. "Cavalry – Their Place in War." *The Idler*. July 1900, 251-259.

Phillipps, L. March. "Future Colonisation." *The Speaker*. December 16, 1905, 281-282.

Politicus. "The Eastern Question and European War." *The Fortnightly Review*. December 1912, 989-1000.

Pollock, A. W. A. "Military Education." *The Fortnightly Review*. February 1907, 337-348.

Pollock, A. W. A. "National Training and a National Army." *The Monthly Review*. January 1907, 21-29.

Preece, W. H. "The Telephone and its Application to Military and Naval Purposes." The Journal of the Royal United Services Institution. 1878 (Volume 94), 209-218.

Preston, W. "A Wonderful Prophecy Wonderfully Fulfilled; or Turkey and Palestine in the Light of Prophecy and Present Events." *The Quiver*. January 1897, 1-6.

Quail. "Forecasts of the Future." *Jesse Macmillan's Magazine*. January 1902, 219.

Rafiuddin, Ahmad. "The Battle of Omdurman and the Mussulman World." *The Nineteenth Century*. October 1898, 688-696.

Rawson, H. E. "A New Principle in Weather Forecasting and its Importance in Naval and Military Operations." *The Journal of the Royal United Services Institution.* April 1909, 474-491.

Reid, Walter F. "The Use of Explosives in Aerial Warfare." *The Journal of the Royal United Services Institution.* June 1911, 735-749.

Roberts. "The Army – As It Was and As It Is." *The Nineteenth Century*. January 1905, 1-26.

Roberts, Charles. "European Militarism and an Alternative." *The Economic Review*. January 1894, 87-101.

Roberts, Frederick. "The Lessons of the Balkan War." *The English Review*. March 1913, 520-525.

Robida, Albert, "La Guerre au Vingtieme Siecle." In *The Tale of the Next Great War, 1870-1914: Fictions of Future Warfare and of Battles Still-to-come*, edited by I. F. Clarke, 95-112. Liverpool: Liverpool University Press, 1995.

Rogers, E. "The Gatling Gun: its Place in Tactics. *The Journal of the Royal United Services Institution.* 1875 (Volume 82), 419-445.

Rogers, J. B. Leslie. "Telephotography in Modern Warfare." *Journal of the United Services Institute of India*. Vol XXIX, 1900, 181-185.

Rohne, von. "How is Fire Superiority to be Obtained in the Infantry Attack." *The Journal of the Royal United Services.* March 1900, 258-263.

Rothe. "The Conditions Regarding the Efficiency of Armies in the Present Day." *The Journal of the Royal United Services Institution.* March 1903, 289-299.

Runciman, John F. "The Future of the Drama and the Drama of the Future." *The Magazine of Music.* January 1892, 6-7.

Rundschau, Marine. "International Arbitration." *The Journal of the Royal United Services Institution*. December 1907, 1520-27.

Satterthwaite, E. "A Description on the Reconnaissance Work Undertaken by the home District Tactical and War-Game Society in the Summer of 1891." *The Journal of the Royal United Services Institution*. January 1892, 35-40.

Satterthwaite, E. "The Late War Game in the Open." *The Journal of the Royal United Services Institution*. July 1891, 771-778.

Scout, Grey. "The Future of Our Cavalry." *The Saturday Review*. March 21, 1903, 352.

Scout, Grey. "The Future of Our Cavalry – II." *The Saturday Review*. April 11, 1903, 446-447.

Scout, Grey. "The Future of Our Cavalry – IV Training." *The Saturday Review*. September 5, 1903, 291-292.

Scout, Grey. "Our Cavalry." *The Saturday Review*. October 12, 1912, 448-449.

Selwyn, J. H. "On the True Economics of England's Naval Power." *The Journal of the Royal United Services Institution.* 1871 (Volume 63), 157-175.

Shaler, N. S. "The Future of Canada." *The Universal Review*. January 1889, 4-20.

Shee, George F. "Machinery or Man-Power." *The Fortnightly Review*. May 1910, 235-248.

Sibly, N. W. "Some Issues of the Transvaal War." *Westminster Review*. May 1900, 512-516.

Skinner, F. D. "Cavalry Fire Action." *The Cavalry Review*. October 1912, 461-473.

Slade, C. G. "Modern Military Rifles and Fire Tactics." *The Journal of the Royal United Services Institution.* 1888 (Volume 146), 899-917.

Smith, Goldwin. "Progress and War." *Macmillan's Magazine*. July 1889, 230-240.

Soldier, A. "The Tsar's Appeal for Peace." *The Contemporary Review*. October 1898, 498-504.

Stanhope, Sprigg. "The Fiction of the Future." *The Ludgate*. September 1896, 457-465.

Stead, W. T. "The Bloch Peace Museum at Lucerne – Wanted £5,000." *The Review of Reviews*. May 1909, 428.

Stead, W. T. "A Conversation with M. Bloch, the Author of 'The Future of War'." *The Review of Reviews*. May 1899, 1.

Stead, W.T. "Has War Become Impossible?" *The Review of Reviews*. May 1899, 2.

Stillman, W. J. "The Peace of Europe." *The Contemporary Review*. March 1899, 311-322.

Strange, A. "On the Necessity for a Permanent Commission on State Scientific Questions." *The Journal of the Royal United Services Institution.* 1871 (Volume 64), 537-566.

Sturdee, Robert. "The Teaching of History on War." *Westminster Review*. August 1902, 124-134.

Templer. "Steam Transport on Roads." *The Journal of the Royal United Services.* August 1894, 829-865.

Thomas, G. G. "The Bloch Museum of Peace and War," *Chambers Journal LXXX* (1903): 258.

Thring. "Lessons of the War." *The Nineteenth Century*. November 1900, 695-701.

Tilney, W. A. "Aerial Reconnaissance in War." *The Cavalry Journal*. January 1911, 12-13.

Tourgee, Albion W. "The Twentieth Century Peacemakers." *The Contemporary Review*. June 1899, 886-908.

Trapmann, A. H. "Cyclists in Conjunction with Cavalry." *The Cavalry Journal*. July 1908, 353-364.

Trapmann, A. H. "The Cycle in Warfare: Its Potency as a Strategical and Tactical Factor." *The Journal of the Royal United Services Institution.* March 1909, 297-325.

Vane, Denzil. "The Balloon of the Future." *Belgravia: a London Magazine*. March 1890, 300-305.

Verner, Willoughby. "A French View of our Army in South Africa." *Macmillans Magazine*. September 1902, 386-400.

Vickers, C. E., "The Trenches." In *The Tale of the Next Great War, 1870-1914: Fictions of Future Warfare and of Battles Still-to-come*, edited by I. F' Clarke, 234-250. Liverpool: Liverpool University Press, 1995.

Sosnowsky, Theodor von. "The Future of the British Army." *The Fortnightly Review*. May 1900, 792-806.

Waldron, F. E. "Aeroplanes and Cavalry." *Cavalry Review*. July 1913, 313-319.

Wardrop, A. E. "Pig Sticking." *The Cavalry Review*. April 1913, 221-226.

Ware, W. A. H. "The Tactics of the Future." *The Journal of the Royal United Services.* March 1896, 277-304.

Ware, W. A. H. "The Tactics of the Future." *The Journal of the Royal United Services.* April 1896, 423-452.

Ware, W. A. H. "The Tactics of the Future." *The Journal of the Royal United Services.* May 1896, 587-608.

Webber, C. E. "Army Reform Based on Some Nineteenth Century Lessons in Warfare." *The Journal of the Royal United Services.* April 1901, 278-420.

Webber, C. E. "Army Reform: The Necessity for an Advisory Board." *The Journal of the Royal United Services.* September 1901, 1037-43.

Welch, Francis. "Military Notes Round Plevna and on the Danube, During December 1877 to January 1878." *The Journal of the Royal United Services Institution.* 1878 (Volume 95), 328-341.

Wells, H. G. "Anticipations: an Experiment in Prophecy – I – Locomotion in the Twentieth century." *The Fortnightly Review*, April 1901, 747-760.

Wells, H. G. "Anticipations: an Experiment in Prophecy – VI – War." *The Fortnightly Review*. September 1901, 538-554.

Wells, H. G. "Anticipations: an Experiment in Prophecy – IX – The Faith, Morals, and Public Policy of the New Republic." *The Fortnightly Review*. December 1901, 1063-1082.

Wells, H. G. *The Discovery of the Future: a Discourse delivered at the Royal Institution*. New York: B. W. Huesch, 1913. Accessed 5 April 2017, https://www.archive.org.

Wells, H.G. "The Land Ironclads." In *Selected Stories of H. G. Wells,* 153-173*.* Modern Library Paperback: 2004 [First Published 1903].

White, Arnold. "The Tsar's Manifesto." *The National Review*. October 1898. 201-210.

White, William. "Opening Address by Sir Willian White KCB, LLD, FRS, President of the Mechanical Science Section of the British Association." *Journal of the Royal United Services Institution. January 1900*. 1-110.

Williams, Ernest. "The Future of Africa." *The Windsor Magazine*. October 1900, 537-562.

Williams, H. Spencer. "The Practical Value of the War Game." *The Journal of the Royal United Services Institution.* 1888 (Volume 143), 69-88.

Williams, J. E. Hodder. "Provocations by H.G. Wells." *The Bookman*. December 1901, 91-92.

Wilson, C. W. "A History of Cavalry from the Earliest Times: with Lessons for the Future." *The Academy*. September 8, 1877, 239-240.

Wilson, H. W. "The Growth of the World's Armaments." *The Nineteenth Century: A Monthly Review*. May 1898, 706-716.

Wylly, W. C. "Some Russian Views on the Employment of Cavalry." *The Cavalry Journal*. January 1911, 83-86.

Younghusband, G. J. "The Horseman of the Future." *The Monthly Review*. November 1902, 70-85.

Zalesskij. "The Russian Cavalry in the War with the Japanese." *The Cavalry Journal*. July 1906, 314-320.

Secondary Sources

Online Resources

British Newspapers Archive. https://www.britishnewspaperarchive.co.uk

British Periodicals Online. https://www.proquest.com/products-services/british_periodicals.html

Oxford Dictionary of National Biography. www.oxfordnb.com.

Oxford English Dictionary. www.oed.com.

Books and Journal Articles

Anderson, Katherine. *Predicting the Weather*. Chicago & London: University of Chicago Press, 2005.

Aradel, Rosemary T. van and Vann, J. Don eds. *Victorian Periodicals and Victorian Society.* Toronto: University of Toronto, 1995.

Arquilla, John, and Nomura, Ryan. "Three Wars of Ideas about the Idea of War." *Comparative Strategy*, 34 (2015): 185-201.

Attridge, Steve. *Nationalism, Imperialism and Identity in Late Victorian Culture, Civil and Military Worlds*. Basingstoke: Palgrave Macmillan, 2003.

Backhouse, Roger. *The Penguin History of Economics*. London: Penguin, 2002.

Badsey, Stephen. *Doctrine and Reform in the British Cavalry 1880-1918*. Aldershot: Ashgate, 2008.

Badsey, Stephen. "The Boer War (1899 – 1902) and British Cavalry Doctrine: A Re-Evaluation." *Journal of Military History* 71 (2007): 75-97.

Bailey, Jonathan B. A. "The First World War and the Birth of Modern Warfare." In *The Dynamics of Military Revolution 1300-2050*, edited by Knox Macgregor and Murray Williamson, 132-153. Cambridge: Cambridge University Press, 2001.

Bale, Laurel, "Markets, Genres, Iterations." In *The Routledge Handbook to Nineteenth Century British Periodicals and Newspapers*, edited by Andrew King, Alexis Easley and John Morton, 237-248. Abingdon: Routledge, 2016.

Barr, Niall. "Command in the Transition from Mobile to Static Warfare, August 1914 to March 1915." In *Command and Control on the Western Front: The British Army's Experience 1914-18*, edited by Gary Sheffield and Dan Todman, 13-38. Stroud: Spellmount, 2007.

Beach, James, ed. *The German Army Handbook of 1918*. Barnsley: Frontline Books, 2008.

Beaven, Brad. *Leisure, Citizenship and Working Class Men in Britain 1850-1945*. Manchester: Manchester University Press, 2005.

Beaven, Brad. "The Provincial Press, Civic Ceremony and the Citizen-Soldier During the Boer War, 1899-1902: A Study of Local Patriotism." *Journal of Imperial and Commonwealth History* 37 (2009): 207-228.

Beckett, Ian and Simpson, Keith, eds. *A Nation at Arms: The British Army in the First World War.* Barnsley: Pen & Sword Books, 2014 [First Published 1985].

Beckett, Ian, Bowen, Timothy and Connelly, Mark. *The British Army and the First World War*. Cambridge: Cambridge University Press, 2017.

Bell, Wendell. *Foundations of Futures Studies Volume 1: History, Purposes, and Knowledge.* London: Routledge, 2017 [First Published 1997].

Bell, Wendell. *Foundations of Future Studies Volume 2: Values, Objectivity and the Good Society.* London: Routledge, 2018 [First Published 1997].

Blom, Philipp. *The Vertigo Years*. Philadelphia: Basic Books, 2008.

Bond, Brian. "Doctrine and Training in the British Cavalry". In *The Theory and Practice of War*, edited by M. Howard, 120-144. London: Cassell, 1965.

Bond, Brian. *War and Society in Europe 1870-1970*. Stroud: Sutton Publishing, 1998 [First Published 1984].

Bond, Brian and Roy, Ian, eds. *War and Society: A Yearbook of Military History*. London: Croom Helm, 1975.

Bou, Jean. "Cavalry, Firepower, and Swords: The Australian Light Horse and the Tactical Lessons of Cavalry Operations in Palestine, 1916-1918." *Journal of Military History* 71 (2007): 99-125.

Bowler, Peter. *A History of the Future: Prophets of Progress from H.G. Wells to Isaac Asimov.* Cambridge: Cambridge University Press, 2017.

Bowman, Timothy and Connelly, Mark. *The Edwardian Army: Recruiting, Training and Deploying the British Army, 1902-1914*. Oxford: Oxford University Press, 2012.

Brake, Laura, ed. *Dictionary of Nineteenth Century Journalism*. London: Academia Press & British Library, 2009.

Broks, Peter. *Media Science Before the Great War*. Basingstoke and London: Macmillan Press, 1996.

Claeys, Gregory. *Utopia: the History of an Idea*. London: Thames & Hudson, 2020.

Clarke, Christopher. *The Sleepwalkers: How Europe Went to War in 1914*. London: Penguin Books, 2013 [First Published 2012].

Clarke, I. F. ed., *The Great War with Germany 1890-1914: Fictions and Fantasies of the War-to-come*. Liverpool: Liverpool University Press, 1997.

Clarke, I. F. *The Pattern of Expectation 1644-2001.* London: Jonathan Cape, 1979.

Clarke, I. F., ed. *The Tale of the Next Great War, 1870-1914: Fictions of Future Warfare and of Battles Still-to-come*. Liverpool: Liverpool University Press, 1995.

Clarke, I. F. *Voices Prophesying War 1763-3749*. Oxford: Oxford University Press, 1992.

Coren, Michael. *The Invisible Man: the Life and Liberties of H. G. Wells*. London: Bloomsbury, 1994.

Corum, James S. *The Roots of Blitzkrieg: Hans von Seeckt and German Military Reform*. Kansas: Kansas University Press, 1992.

Curry, John, ed. *Peter Perla's The Art of Wargaming: A Guide for Professionals and Hobbyists*. Amazon: 2011.

DeGroot, G. J. *Blighty: British Society in the Era of the Great War*. London: Longman, 1996.

Echevarria, A. J. "The Cult of the Offensive' Revisited; Confronting Technological Change Before the Great War." *Journal of Strategic Studies* 25 (2002): 199-214.

Echevarria, A. J. *Imagining Future War: The West's Technological Revolution and Visions of Wars to Come 1880-1914*. London: Praeger Security International, 2007.

Edgerton, David. *The Shock of the Old: Technology and Global History since 1900*. London: Profile Books, 2019.

Ellis, John. *The Social History of the Machine Gun*. London: Pimlico, 1992.

Emmerson, Charles. *1913: The World Before the Great War*. London: Vintage, 2013.

Farrar, L. "Reluctant Warriors: Public Opinion on War During the July Crisis 1914." *East European Quarterly* 16 (1982): 417-446.

Ferguson, Niall. *Empire*. London: Penguin Books, 2003.

Ferguson, Niall. *The Pity of War: 1914-1918*. London: Penguin Books, 1998.

Foley, Robert T., ed. *Alfred von Schlieffen's Military Writing*. Abingdon: Frank Cass, 2003.

Ford, Matthew. "Towards a Revolution in Firepower? Logistics, Lethality, and the Lee-Metford." *War in History* 20(3) (2003): 273-299.

Fox, Aimee. *Learning to Fight: Military Innovation and Change in the British Army 1914-18*. Cambridge: Cambridge University Press 2018.

Galbraith, John Kenneth. *A History of Economics: the Past as the Present*. London: Penguin Books, 1987.

Gardner, Nikolas. "Command and Control in the "Great Retreat" of 1914: The Disintegration of the British Cavalry Division." *The Journal of Military History* 63, 1, (1999): 29-54.

Gooch, John. "Attitudes to War in Late Victorian and Edwardian England." In *War and Society: A Yearbook of Military History*, edited by Brian Bond and Ian Roy, 67-87. London: Croom Helm, 1975.

Harper, Kristine. *Weather by the Numbers: the Genesis of Modern Meteorology.* Cambridge, Mass.: MIT Press, 2008.

Hartcup, Guy. *The Effect of Science on the Second World War.* London: Macmillan Press, 2000.

Heffer, Simon. *The Age of Decadence: Britain 1880 to 1914*. London: Random House, 2017.

Herwig, Holger. "The Battlefleet Revolution, 1885-1914." In *The Dynamics of Military Revolution 1300-2050*, edited by Knox Macgregor and Murray Williamson, 132-153. Cambridge: Cambridge University Press, 2001.

Herwig, Holger. "Germany and the 'Short-War' Illusion: towards a New Interpretation." *The Journal of Military History* 66 (2002): 681-693.

Holman, Brett. "The Phantom Airship Panic of 1913: Imagining Aerial Warfare in Britain before the Great War*." Journal of British Studies.* January 2016: 99-119.

Holmes, Richard. *The Western Front*. London: BBC, 1999.

Howard, Michael. *The Lessons of History*. Oxford: Oxford University Press, 1991.

Howard, Michael. "Men Against Fire: Expectation of War in 1914." *International Security* 9 (1984): 41-57.

Howard, Michael, ed. *The Theory and Practice of War*. London: Cassell, 1965.

Hynes, Samuel. *The Edwardian Turn of Mind*. London: Pimlico, 1991 [first published 1968].

Jackman, Stephen. "Shoulder to Shoulder: Close Control and 'Old Prussian Drill' in German Offensive Infantry Tactics." *The Journal of Military History* 68 (2004): 73-104.

Kennedy, Paul. *The Rise and Fall of the Great Powers*. London: Unwin Hyman, 1988.

Kirkby, Maurice. *Operational Research in War and Peace*. London: Imperial College Press, 2003.

King, Andrew, Alexis Easley and John Morton, eds. *The Routledge Handbook to Nineteenth Century British Periodicals and Newspapers*. Abingdon: Routledge, 2016.

Kitchen, Martin. "Friedrich Engels' Theory of War." *Military Affairs*, 3 (1977): 119-124

Lambert, Nicholas. "Strategic Command and Control for Manoeuvre Warfare: Creation of the Royal Navy's War Room System, 1905-1915." *The Journal of Military History* 69 (2005): 361-410.

Liaropoulus, Andrew. "Revolutions in Warfare: Theoretical Paradigms and Historical Evidence: The Napoleonic and First World War Revolutions in Military Affairs." *The Journal of Military History* 70 (2006): 363-384.

Macgregor, Knox and Williamson, Murray, eds. *The Dynamics of Military Revolution 1300-2050*. Cambridge: Cambridge University Press, 2001.

Macmillan, Margaret. *The War That Ended Peace: How Europe Abandoned Peace for the First World War*. London: Profile Books, 2014.

Mann, Fiona. "Lifting the 'universal veil' of Anonymity: Writers on Art in the Periodical Press 1850-1880." *The British Art Journal*. Vol XV No.2.

McCarthy, Chris. "Queen of the Battlefield: the Development of Command, Organisation and Tactics in the British Infantry Battalion during the Great War." In *Command and Control on the Western Front: The British Army's Experience 1914-18*, edited by Gary Sheffield and Dan Todman, 173-194. Stroud: Spellmount, 2007.

McElwee, William. *The Art of War: Waterloo to Mons*. London: Purnell Book Services, 1974.

Melby, Christian K. "Empire and Nation in British Future-War and Invasion-Scare Fiction, 1871-1914." *The Historical Journal* 63, 2 (2020): 389-440.

Moll, Kenneth. "Politics, Power, and Panic: Britain's 1909 Dreadnought 'Gap'." *Military Affairs* 29(3) (1965): 135-144.

Morgan-Owen, David. *The Fear of Invasion: Strategy, Politics, and British War Planning, 1880-1914*. Oxford: Oxford University Press, 2017.

Moser, Kurt. "The Dark Side of Automobilism, 1900 – 1930." *The Journal of Transport History* 24(2) (2003): 238-258

Murray Nicolas. "Jean de Bloch". *The Encyclopaedia of War*. Wiley Online Library. Accessed April 29, 2017, doi:10.1002/9781444338232.

Neiberg, Michael. *Warfare and Society in Europe, 1898 to the Present*. London: Routledge, 2004.

Nimrod, Tal, "The American Civil War in British Military Thought from the 1880's to the 1930's." *Civil War History* 60(4) (2014): 409-435.

Overy, Richard. *The Birth of the RAF*. London: Penguin, 2019.

Overy, Richard. *Why the Allies Won*. London: Pimlico, 1996.

Pakenham, Thomas. *The Boer War*. London: Abacus, 1992 [First published 1979].

Paris, Michael. *Warrior Nation: Images of War in British Popular Culture, 1850-2000*. London: Reaktion Books, 2002.

Perkins, Harold. *The Rise of Professional Society: England since 1880*. Abingdon: Routledge, 2002. [First published 1989].

Phillips, Gervase. "The Obsolescence of the Arme Blanche and Technological Determinism in British Military History." *War in History* 9(1) (2002): 39-59.

Phillips, Gervase. "Scapegoat Arm: Twentieth-Century Cavalry in Anglophone Historiography." *The Journal of Military History* 71 (2007): 37-74.

Phillips, Gervase. "Who Shall Say That the Days of Cavalry are Over?' The Revival of the Mounted Arm in Europe, 1853-1914." *War in History* 18(1) (2011): 5-32.

Porch, Douglas. "The French Army and the Spirit of the Offensive." In *War and Society: A Yearbook of Military History,* edited by Brian Bond and Ian Roy, 117-143. London: Croom Helm, 1975.

Porch, Douglas. "The Marne and After: A Reappraisal of French Strategy in the First World War." *The Journal of Military History* 53(4) (1989): 363-386.

Prete, Roy. "The Preparation of the French Army Prior to World War I: An Historiographical Reappraisal." *Canadian Journal of History* 2 (1991): 241-266.

Reid, Brian Holden. "The Tank and Visions of Future War," *History Today* 12 (1987):36-41.

Rimer, Graeme. *Firearms: An Illustrated History*. London: Dorling Kindersley, 2014.

Roberts, Adam. *H. G. Wells: A Literary Life*. London: Palgrave Macmillan, 2019.

Roth, Mitchel P. *Historical Dictionary of War Journalism*. London: Greenwood Press, 1997.

Sheffield, Gary. *Forgotten Victory, The First World War: Myths and Realities*. London: Headline Books, 2002.

Sheffield, Gary, and Todman, Dan, eds. *Command and Control on the Western Front: The British Army's Experience 1914-18*. Stroud: Spellmount, 2007.

Sherborne, Michael. *H. G. Wells: Another Kind of Life*. London: Peter Owen, 2010.

Showalter, Dennis. "From Deterrence to Doomsday Machine: The German Way of War, 1890-1914." *The Journal of Military History* 64 (2000): 679-710.

Shy, John. "The Cultural Approach to the History of War." *Journal of Military History* 57 (1993): 13-26.

Smith, David C. *H. G. Wells: Desperately Mortal*. New Haven & London: Yale University Press, 1986.

Snyder, Jack. "Civil-Military Relations and the Cult of the Offensive." *International Security* 9 (1984): 108-146.

Snyder, Jack and Liber, Keir. "Defensive Realism and the 'New' History of World War I." *International Security* 33(1) (2008): 174-194.

Spiers, Edward. *The Army and Society 1815-1914*. London: Longman, 1980.

Streets, Heather. "Military Influence in Late Victorian and Edwardian Popular Media: The Case of Frederick Roberts." *Journal of Victorian Culture* 8 (2003): 231-256.

Sullivan, Alvin. *British Literary Magazines: The Romantic Age, 1789-1836*. London: Greenwood Press, 1983.

Sullivan, Alvin. *British Literary Magazines: The Victorian and Edwardian Age, 1837-1913*. London: Greenwood Press, 1984.

Sullivan, Alvin. *British Literary Magazines: The Modern Age, 1914-1984*. London: Greenwood Press, 1986.

Swift, John N. "Jack London's Unparalleled Invasion: Germ Warfare, Eugenics and Cultural Hygiene." *American Literary Realism* Vol 35 No 1 2002: 59-71.

Taylor, William. "The Debate over Changing Cavalry Tactics and Weapons, 1900-1914." *Military Affairs* 28 (1964): 173-183.

Terraine, John. *The Smoke and the Fire: Myths and Anti-myths of War 1861-1945*. London: Sidgwick & Jackson, 1980.

Terraine, John. *White Heat: the New Warfare 1914-18*. London: Sidgwick & Jackson, 1982.

Todman, Dan. *The Great War: Myth and Memory*. London: Continuum International, 2007.

Tosh, John. "Masculinities in an Industrialising Society: Britain, 1800-1914." *Journal of British Studies* 44 (2005): 330-342.

Travers, T. H. E. "H. G. Wells and British Military Theory 1895-1916." In *War and Society: A Yearbook of Military History*. Edited by Brian Bond and Ian Roy, 67-87. London: Croom Helm, 1975.

Travers, T. H. E. "Learning and Decision-Making on the Western Front, 1915-1916: The British Example." *Canadian Journal of History* 1 (1983): 87-97.

Travers, T. H. E. "The Offensive and the Problem of Innovation in British Military Thought 1870-1915." *Journal of Contemporary History* 13 (1978): 531-553.

Travers, T. H. E. "Technology, Tactics, and Morale: Jean de Bloch, the Boer War, and British Military Theory." *Journal of Modern History* 51 (1971): 264-286.

Travers, T. H. E. *The Killing Ground: The British Army, the Western Front & the Emergence of Modern War 1900-1918*. Barnsley: Pen & Sword, 2009 [first published 1987].

Van Evera, Stephen. "The Cult of the Offensive and the Origins of the First World War." *International Security* 9 (1984), 58-107.

Wagar, W. Warren. *H. G. Wells: Traversing Time*. Middleton: Wesleyan University Press, 2004.

Wawro, Geoffrey. *Warfare and Society in Europe 1792-1914*. Abingdon: Routledge, 2000.

Welch, Michael. "The Centenary of the British Publication of Jean de Bloch's Is War Now Impossible (1899-1999)." *War in History* 7 (2000): 273-294.

Wilcox, Lauren. "Gendering the Cult of the Offensive." *Security Studies* 18 (2009): 214-240.

Wilkinson, Glenn. "The Blessings of War: the Depiction of Military Force in Edwardian Newspapers." *Journal of Contemporary History* 33 (1989): 97-115.